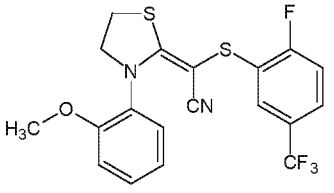
DER Attachment 1: Chemical Name and Structure of Flutianil

Chemical Names and Structures:	
Test material:	Flutianil Technical
Common name:	Flutianil
Synonyms:	OK-5203
IUPAC name:	ISO approved: (Z)-[3-(2-methoxyphenyl)-1,3-thiazolidin-2-ylidene](α, α, α, 4-tetrafluoro-m-tolylthio)acetonitrile New Rules: (Z)-2-[2-fluoro-5-(trifluoromethyl)phenylthio]-2-[3-(2-methoxyphenyl)-1,3-thiazolidin-2-ylidene]acetonitrile
CaliforniaS name:	(2Z)-2-[[2-fluoro-5-(trifluoromethyl)phenyl]thio]-2-[3-(2-methoxyphenyl)-2-thiazolidinylidene]acetonitrile
CaliforniaS No.:	304900-25-2 (revised to 958647-10-4 for Z isomer)
SMILES String:	COC1=CC=CC=C1N2/C(SCC2)=C(SC3=CC(C(F)(F)F)=CC=C3F)\C#N
Structure:	

DER Attachment 2: Statistics Spreadsheets and Graphs

DER Attachment 3: Calculations

Calculations were performed by the reviewer using PestDF, and the following equations.

Single First-Order (SFO) Model

$$C_t = C_0 e^{-kt} \quad \text{(eq. 1)}$$

where,

C_t = concentration at time t (%)
C_0 = initial concentration (%)
e = Euler's number (-)
k = SFO rate constant of decline (d^{-1})
t = time (d)

The SFO equation is solved with PestDF by adjusting C_0 and k to minimize the objective function (S_{SFO}) shown in equation 9.

DT_{50} = natural log (2)/k (eq. 2)

DT_{90} = ln (10)/k (eq. 3)

Indeterminate Order Rate Equation (IORE) Model

$$C_t = \left[C_0^{(1-N)} - (1-N)k_{IORE}t\right]^{\left(\frac{1}{1-N}\right)} \quad \text{(eq. 4)}$$

where,

N = order of decline rate (-)
k_{IORE} = IORE rate constant of decline (d^{-1})

This equation is solved with PestDF by adjusting C_0, k_{IORE}, and N to minimize the objective function for IORE (SIORE) (See equation 9). Half-lives for the IORE model are calculated using equation 5, which represents a first-order half-life that passes through the DT_{90} of the IORE model. (Traditional DT_{50} and DT_{90} values for the IORE model can be calculated using equations 6 and 7.)

$$t_{IORE} = \frac{\log(2)}{\log(10)} \frac{{C_0}^{1-N}\left(1-0.1^{(1-N)}\right)}{(1-N)k_{IORE}} \quad \text{(eq. 5)}$$

$$DT_{50} = \frac{(C_0/2)^{(1-N)} - C_0^{(1-N)}}{k(N-1)} \quad \text{(eq. 6)}$$

$$DT_{90} = \frac{(C_0/10)^{(1-N)} - C_0^{(1-N)}}{k(N-1)} \quad \text{(eq. 7)}$$

Double First-Order in Parallel (DFOP) Model

$$C_t = C_0 g^{-k_1 t} + C_0(1-g)^{-k_2 t} \quad \text{(eq. 8)}$$

where,

g = the fraction of C_0 applied to compartment 1 (-)
k_1 = rate constant for compartment 1 (d^{-1})
k_2 = rate constant for compartment 2 (d^{-1})

If $C_0 \times g$ is set equal to a and $C_0(1-g)$ is set equal to c, then the equation can be solved with R kinetics software for a, c, k_1, and k_2 by minimizing the objective function (S_{DFOP}) as described in equation 9.

DT_{50} and DT_{90} values can be calculated using equations 2 and 3, with k_1 or k_2 in place of k.

Objective Function: SFO, IORE, and DFOP are solved by minimizing the objective function (S_{SFO}, S_{IORE}, or S_{DFOP}).

$$S_{SFO}, S_{IORE}, \text{or } S_{DFOP} = \sum(C_{model,t} - C_{d,t})^2 \quad \text{(eq. 9)}$$

where,

S_{SFO} , S_{IORE}, or S_{DFOP} = objective function of kinetics model fit ($\%^2$)
n = number of data points (-)
$C_{model,t}$ = modeled value at time corresponding to $C_{d,t}$ (%)
$C_{d,t}$ = experimental concentration at time t (%)

Critical Value to Determine Whether SFO is an Adequate Kinetics Model

If S_{SFO} is less than S_C, the SFO model is adequate to describe kinetics. If not, the faster of t_{IORE} or the DFOP DT_{50} for compartment 2 should be used.

$$S_c = S_{IORE}\left(1 + \frac{p}{n-p} F(\alpha, p, n-p)\right) \quad \text{(eq. 10)}$$

where,

S_c = the critical value that defines the confidence contours ($\%^2$)
p = number of parameters (3 in this case)
α = the confidence level (0.50 in this case)
F(α, p, n-p) = F distribution with α level of confidence and degrees of freedom p and n-p

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Subject: RE: DWA Characterization/CLA Follow up
Attachments: The updated EDWCs for Citrus Use on Aldicarb.docx

Amy:

The attached write-up has incorporated Steve's edits.
Please advise if any comments.
Thanks much.

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Washington DC 20460

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Message

From: Lin, James [lin.james@epa.gov]
Sent: 10/16/2019 4:43:39 PM
To: Blankinship, Amy [Blankinship.Amy@epa.gov]; Wente, Stephen [Wente.Stephen@epa.gov]
CC: Arnold, Elyssa [Arnold.Elyssa@epa.gov]
Subject: RE: DWA Characterization/CLA Follow up
Attachments: updated EDWCs for Citrus Use on Aldicarb.docx

Please see the update EDWCs for surface water with the regional PCA considered.
Advise any comments. Thanks much.

Jim

From: Blankinship, Amy <Blankinship.Amy@epa.gov>
Sent: Tuesday, October 15, 2019 1:36 PM
To: Wente, Stephen <Wente.Stephen@epa.gov>; Lin, James <lin.james@epa.gov>
Cc: Arnold, Elyssa <Arnold.Elyssa@epa.gov>
Subject: RE: DWA Characterization/CLA Follow up

Hi Jim and Steve,

Once we have come to resolution on the PCAs to be used, we can add this piece to the write-up that we shared with RD/HED before and sent back around to them to show them where we landed on EDWC work. We do not need to prepare a formal memo at this point. It will be interesting to see where the PCT and dietary numbers ended up once domestic citrus is considered in the HED numbers.

Amy

From: Wente, Stephen <Wente.Stephen@epa.gov>
Sent: Tuesday, October 15, 2019 11:33 AM
To: Lin, James <lin.james@epa.gov>
Cc: Blankinship, Amy <Blankinship.Amy@epa.gov>
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Responses in blue below. Ex. 5 Deliberative Process (DP)

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Attachments: PCA_Revised Regional PCAs include cotton orchard vegetables 121516.xlsx; 103801_434819_DWA_Addendum_12_29_16.pdf; 103801_438940_DWA_Addendum_05_09_17.pdf

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From: Corbin, Mark
Sent: Monday, December 12, 2016 12:25 PM
To: Hetrick, James <Hetrick.James@epa.gov>; Thurman, Nelson <Thurman.Nelson@epa.gov>; Eckel, William <Eckel.William@epa.gov>; Cowles, James <Cowles.James@epa.gov>; Young, Dirk <young.dirk@epa.gov>; Barrett, Michael R. <Barrett.Michael@epa.gov>; Peck, Charles <Peck.Charles@epa.gov>; White, Katrina <White.Katrina@epa.gov>; Bohaty, Rochelle <Bohaty.Rochelle@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Cc: Villanueva, Philip <Villanueva.Philip@epa.gov>
Subject: DWA Characterization/CLA Follow up

All

Since the CLA meeting on Groundwater is scheduled for this Wednesday afternoon and we discussed a couple of action items from our meeting two weeks ago I thought I would put some thoughts on what we agreed to do in preparation for this week's meeting. We now have the list of Groundwater DWA they want to go over with us and I will work with the BC's to ensure each chemical team is represented. Here is what we agreed to do in preparation for this week's meeting

Materials to Provide Prior to the GW CLA Meeting

Analysis of DW intake catchments vs PCA's – Katrina (in progress)

Background Document – Mark provided but not sure this is ready to release (attached)

Outline of typical refinement/characterizations – Mark (attached)

Tiered Approach Table – Jim already provided (attached)

Monitoring Data SOP – Mark (attached)

Finally we talked about areas of work that they could do analysis on for us to consider, including

How to select Applications Dates in a National Scale Model (SAM)

How to manage sediment erosion modeling in watershed models

Others

Also on the GW meeting there are a couple of thoughts we should come prepared to discuss

Subsurface Degradation

New Scenarios and Vulnerability Mapping

What is the appropriate concentrations to report

Duration of modeling runs (30 vs 100 years)

Mark Corbin
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Message

From: Blankinship, Amy [Blankinship.Amy@epa.gov]
Sent: 10/1/2019 4:12:58 PM
To: OPP EFED ERB2 [OPP_EFED_ERB2@epa.gov]
Subject: FW: Annual updates to the Acute and Chronic RfD List and Cancer Classification List
Attachments: 2019 RfD Summary Report.pdf; Chemicals Evaluated for Carcinogenic Potential 2019 .pdf; Chemicals Evaluated for Carcinogenic Potential 2019 cover memo.doc; RfDcovermemo Sept 2019.doc

FYI.

From: Matuszko, Jan <Matuszko.Jan@epa.gov>
Sent: Tuesday, October 01, 2019 12:03 PM
To: OPP EFED Managers <OPP_EFED_Managers@epa.gov>
Subject: FW: Annual updates to the Acute and Chronic RfD List and Cancer Classification List

FYI.

From: Akerman, Gregory <Akerman.Gregory@epa.gov>
Sent: Tuesday, October 1, 2019 8:11 AM
To: OPP Division Directors <OPP_Division_Directors@epa.gov>; OPP Deputy & Associate Directors <OPP_Deputy_&_Associate_Directors@epa.gov>
Cc: May, Brenda <May.Brenda@epa.gov>
Subject: Annual updates to the Acute and Chronic RfD List and Cancer Classification List

All:

Attached are the annual updates to the Acute and Chronic Reference Doses (RfDs) List and the List of Chemicals Evaluated for Carcinogenic Potential by OPP. Both lists are current through August 2019.

Please see the corresponding cover memos for additional information. If you have any questions, please contact Brenda May (703-308-6175; may.brenda@epa.gov).

For future reference, these documents will be stored in the HED Policy Documents application on the OPP PRISM Applications web page: OPP Applications.

Regards,

Greg

_____

Greg Akerman
Acting Associate Director
HED
OPP
703-305-0116

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
600074	1,2,4-Triazole	See Other	--	--	--	--	Same Dose/Endpoints as: Triazole alanine, (PC Code 600011).	--	--	--	--
079038	1-Decanol	None	--	--	--	--	Based on the low hazard concern from the available studies, no endpoints of toxicological concern have been identified for risk assessments. Also, there are no food tolerances; aliphatic alcohols are considered to be Non Food Use Chemical.	--	--	--	30-Jun-06
079069	1-Tetradecanol,formate	See Other	--	--	--	--	Same Dose/Endpoints as: Methyl esters of fatty acids, (PC Code 079034).	--	--	--	--
030801	2, 4 - DB	Acute Dietary, General Population	0.67	67.00	100	227.00	Based on increased incidence of incoordination, slight gait abnormalities, and decreased total motor activity.	Rat	Acute Neurotoxicity	43115201	18-Dec-18
030801	2, 4 - DB	Acute Dietary, Females 13-49	0.15	15.00	100	30.00	Based on increased early resorptions.	Rabbit	Developmental Toxicity	41529902	18-Dec-18
030801	2, 4 - DB	Chronic Dietary, General Population	0.15	15.00	100	30.00	Based on increased early resorptions; and body weight changes and kidney effects in co-critical subchronic oral rat study.	Rabbit	Developmental Toxicity	41529902; 41775401	18-Dec-18
030819	2, 4 - DB DMA	See Other	--	--	--	--	Same Dose/Endpoints as: 2, 4 - DB, (PC Code 030801).	--	--	--	--
030001	2,4-D + Salts & Esters	Acute Dietary, General Population	0.67	67.00	100	227.00	Increased incidence of incoordination and slight gait abnormalities.	Rat	Acute Neurotoxicity	43115201	27-Sep-17
030001	2,4-D + Salts & Esters	Acute Dietary, Females 13-49	0.25	25.00	100	75.00	Increased incidence of skeletal malformations and variations.	Rat	Developmental Toxicity	00130407; 00130408	27-Sep-17
030001	2,4-D + Salts & Esters	Chronic Dietary, General Population	0.21	21.00	100	47.00	Based on kidney toxicity manifested as increased kidney weights and increased incidence of degeneration of the proximal convoluted tubules and for offspring based on decreased body weight observed throughout lactation.	Rat	Reproduction	47972101	27-Sep-17
051505	2,4-D Choline	See Other	--	--	--	--	Same Dose/Endpoints as: 2,4-D + Salts & Esters, (PC Code 030001).	--	--	--	
031402	2,4-DP-p	Acute Dietary, General Population	1.25	125.00	100	250.00	Based on multiple FOB findings and decreased motor activity in male and females.	Rat	Acute Neurotoxicity	43770901	07-Dec-18
031402	2,4-DP-p	Acute Dietary, Females 13-49	0.5	50.0	100	100.0	Based on increased early resorptions.	Rabbit	Developmental Toxicity	42845804	07-Dec-18
031402	2,4-DP-p	Chronic Dietary, General Population	0.06	6.0	100	59.0	Based on decreased absolute body weight, food consumption, and food efficiency in males, histopathology of the kidney in males (chronic nephropathy, calcification, tubule pigmentation) and females (chronic nephropathy and calcification), and increased absolute and relative kidney weight in females.	Mouse	Carcinogenicity	44900801; 44888201	07-Dec-18
031465	2,4-DP-p, 2-ethylhexyl ester	See Other	--	--	--	--	Same Dose/Endpoints as: 2,4-DP-p, (PC Code 031402).	--	--	--	--
031403	2,4-DP-p, DMA salt	See Other	--	--	--	--	Same Dose/Endpoints as: 2,4-DP-p, (PC Code 031402).	--	--	--	--
027402	2,6-Dichlorobenzamide (BAM)	Acute Dietary, General Population	0.10	Not Est.	1000	100.00	Lethargy after a single oral dose in range-finding erythrocyte micronucleus assay.	Mouse	Range-Finding	43003602; 43747101	05-Dec-17
027402	2,6-Dichlorobenzamide (BAM)	Chronic Dietary, General Population	0.045	4.50	100	12.50	Decreased body weight and body weight gain.	Dog	Chronic	42940203	05-Dec-17
075002	2-Fluoroacetamide	See Other	--	--	--	--	Same Dose/Endpoints as: Sodium fluoroacetate, (PC Code 075003).	--	--	--	--
035303	3,5-Dibromo-4-hydroxybenzonitrile butyrate	See Other	--	--	--	--	Same Dose/Endpoints as: Bromoxynil, (PC Code 035301).	--	--	--	--
019401	4-Chlorophenoxyacetic acid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	17-Jul-14
019401	4-Chlorophenoxyacetic acid	Chronic Dietary, General Population	1.32	132.00	100	517.00	Based on decreased body weights in males and females and lymphohistiocytic infiltration and individual hepatocyte necrosis in males and increased urine volume in females.	Rat	Subchronic	42902501	17-Jul-14
122804	Abamectin	Acute Dietary, General Population	0.0025	0.25	100	0.50	Based on mydriasis during week one, death at 1.0 mg/kg/day.	Dog	Subchronic	00131082; 40375510	10-Sep-18
122804	Abamectin	Chronic Dietary, General Population	0.0025	0.25	100	0.50	Based on mydriasis during week one, death at 1.0 mg/kg/day.	Dog	Subchronic	00131082; 40375510	10-Sep-18
103301	Acephate	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.003	BMDL10 = 0.272	100	BMD10 = 0.5128	Inhibition of brain AChE in male pups on PND 11.	Rat	Comparative Cholinesterase Assay	46151801	28-Mar-18
103301	Acephate	Acute Dietary, Adults 50-99 Years	0.003	BMDL10 = 0.272	100	BMD10 = 0.5128	Inhibition of brain AChE in male pups on PND 11.	Rat	Comparative Cholinesterase Assay	46151801	28-Mar-18
103301	Acephate	Steady State Dietary, Adults 50-99 Years	0.003	BMDL10 = 0.272	100	BMD10 = 0.5128	Inhibition of brain AChE in male pups on PND 11.	Rat	Comparative Cholinesterase Assay	46151801	28-Mar-18
103301	Acephate	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.003	BMDL10 = 0.272	100	BMD10 = 0.5128	Inhibition of brain AChE in male pups on PND 11.	Rat	Comparative Cholinesterase Assay	46151801	28-Mar-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
006329	Acequinocyl	Acute Dietary, General Population	0.073	7.30	100	58.90	Based on hemorrhagic effects, swollen body parts, protruding eyes, clinical signs, delays in pupil development and increased mortality post weaning.	Rat	Reproduction	45531909	16-May-16
006329	Acequinocyl	Chronic Dietary, General Population	0.027	2.70	100	7.00	Based on clinical chemistry and microscopic non-neoplastic lesions (brown pigmented cells and perivascular inflammatory cells in liver).	Mouse	Carcinogenicity	45531911	16-May-16
099050	Acetamiprid	Acute Dietary, General Population	0.10	10.00	100	45.00	Based on decreased body weight and body weight gains in offspring, decreased early pup survival on PND 0-1 and decreased startle response on PND 20/60 in males.	Rat	Developmental Neurotoxicity	46255619; 44651842	15-Dec-17
099050	Acetamiprid	Chronic Dietary, General Population	0.071	7.10	100	17.50	Based on decreased body weight and body weight gains in females, and hepatocellular vacuolation in males.	Rat	Chronic/ Carcinogenicity	44988429; 45245304	15-Dec-17
121601	Acetochlor	Acute Dietary, General Population	1.50	150.00	100	500.00	Based on decreased motor activity in females.	Rat	Acute Neurotoxicity	45357501	04-Apr-18
121601	Acetochlor	Chronic Dietary, General Population	0.02	2.00	100	10.00	Based on increased salivation and histopathology in the testes, kidney and liver.	Dog	Chronic	41565118	04-Apr-18
061402	Acibenzolar-S-methyl	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.082	8.20	100	82.00	Changes in brain morphometrics in the cerebellum in offspring.	Rat	Developmental Neurotoxicity	46046401	12-Dec-17
061402	Acibenzolar-S-methyl	Acute Dietary, Adults 50-99 Years	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-Dec-17
061402	Acibenzolar-S-methyl	Chronic Dietary, Females 13-49	0.082	8.20	100	82.00	Changes in brain morphometrics in the cerebellum in offspring.	Rat	Developmental Neurotoxicity	46046401	12-Dec-17
061402	Acibenzolar-S-methyl	Chronic Dietary, All Populations (Except Adults 50-99 Years)	0.25	25.0	100	105.0	Based on hemolytic anemia with compensatory response.	Dog	Chronic	44014234; 44014241; 44014235;	12-Dec-17
114402	Acifluorfen sodium	Acute Dietary, General Population	2.90	293.00	100	440.00	Based on decreased (27-44%) ambulatory motor and total motor activities in females.	Rat	Acute Neurotoxicity	49318001	17-Jun-15
114402	Acifluorfen sodium	Acute Dietary, Females 13-49	0.2	20.00	100	90.00	Based on increased incidence of slightly dilated lateral ventricles of the brain.	Rat	Developmental Toxicity	00122743	17-Jun-15
114402	Acifluorfen sodium	Chronic Dietary, General Population	0.013	1.25	100	25.00	Kidney lesions; dilation of tubules in the outer medulla in females.	Rat	Reproduction	00155548	17-Jun-15
000701	Acrolein	Acute Dietary, General Population	--	--	--	--	Acute oral (dietary and drinking water) exposure is not expected based on use patterns, physical-chemical properties and plant metabolism data.	--	--	--	25-Mar-08
000701	Acrolein	Chronic Dietary, General Population	--	--	--	--	Chronic oral (dietary and drinking water) exposure is not expected based on use patterns, physical-chemical properties and plant metabolism data.	--	--	--	25-Mar-08
069105	ADBAC	Acute Dietary, General Population	0.10	10.00	100	30.00	Decreased body weight.	Rat	Developmental Toxicity	--	18-Dec-99
069105	ADBAC	Chronic Dietary, General Population	0.44	44.00	100	88.00	Decreased body weight/body weight gain in males.	Rat	Chronic/ Carcinogenicity	41947501	18-Dec-99
026200	Afidopyropen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	04-Apr-18
026200	Afidopyropen	Acute Dietary, Females 13-49	0.16	16.00	100	32.00	Based on increased early resorptions per litter.	Rabbit	Developmental Toxicity	49688994; 49688995	04-Apr-18
026200	Afidopyropen	Chronic Dietary, General Population	0.08	8.00	100	20.00	Based on hyaline droplet deposition in hepatocytes and vacuolation of the white matter and neuropil of the cerebrum of male dogs; And decreased absolute body weight, and decreased spleen and thymus weights in male rats.	Dog	Chronic	49688970; 49688989	04-Apr-18
090501	Alachlor	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified for this population subgroup.	--	--	--	08-Jan-07
090501	Alachlor	Acute Dietary, Females 13-49	1.50	150.00	100	400.00	Clinical signs, mortality and decreased body weight gain.	Rat	Developmental Toxicity	00043645	08-Jan-07
090501	Alachlor	Chronic Dietary, General Population	0.01	1.000	100	3.000	Hemosiderosis in males.	Dog	Chronic	00148923	08-Jan-07
079029	Alcohols, Cx-Cxx	See Other	--	--	--	--	Same Dose/Endpoints as: 1-Decanol (PC Code 079038).	--	--	--	--
098301	Aldicarb	Acute Dietary, General Population	0.0013	BMDL10 = 0.013	10	BMD10 = 0.02	RBC ChEI.	Human	Acute	42373001; 46131001	25-Mar-16
098301	Aldicarb	Chronic Dietary, General Population	--	--	--	--	A quantitative chronic assessment was not conducted because the toxicity database for aldicarb indicates that the magnitude of ChEI does not increase with continued exposure, due to the reversibility of ChEI (< 24 hours). The longer-term exposures could be considered as a series of acute exposures.	--	--	--	25-Mar-16
063503	Aliphatic petroleum solvent	None	--	--	--	--	Since no effects were seen in any guideline toxicity study at doses relevant for human health risk assessment, no toxicological points of departure (PODs) were selected for aliphatic solvents.	--	--	--	28-Dec-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
117101	Alpha-Chlorohydrin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	17-Aug-06
117101	Alpha-Chlorohydrin	Chronic Dietary, General Population	--	--	--	--	Non-food Use Chemical.	--	--	--	17-Aug-06
209600	Alpha-Cypermethrin	Acute Dietary, General Population	0.014	BMDL = 1.4	100	BMD = 11.20	Based on motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	21-Dec-17
209600	Alpha-Cypermethrin	Acute Dietary, Infants and Children	0.014	BMDL = 1.4	100	BMD = 11.20	Based on motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	21-Dec-17
066501	Aluminum phosphide	Acute Dietary, General Population	0.018	1.80	100	Not Est.	No effects seen at highest dose tested; 3 exposure regimens in this 90-day study.	Rat	Subchronic	41413101	10-Jun-98
066501	Aluminum phosphide	Chronic Dietary, General Population	0.0113	1.13	100	Not Est.	No effects seen at highest dose tested.	Rat	Chronic/ Carcinogenicity	44415101	10-Jun-98
119210	Ametoctradin	None	--	--	--	--	No single dose or repeated dose study performed by any route of exposure produced a significant toxic effect up to or near enough to the limit dose (1000 mg/kg/day). No toxicological points of departure were selected for ametoctradin. As a result, no dietary, residential, occupational, or aggregate exposure assessments are required at this time.	--	--	--	24-May-17
080801	Ametryn	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Dec-17
080801	Ametryn	Chronic Dietary, General Population	0.072	7.20	100	70.00	Degenerative liver lesions.	Dog	Chronic	40349902	20-Dec-17
114004	Amicarbazone	Acute Dietary, General Population	0.10	10.00	100	20.00	Eyelid ptosis, decreased approach response (both sexes) and red nasal staining in males.	Rat	Acute Neurotoxicity	45121526; 45121527	09-Sep-15
114004	Amicarbazone	Chronic Dietary, General Population	0.023	2.30	100	25.30	Decreases in body weight and body weight gains in rats; and increased absolute and relative liver weights, triglycerides and cholesterol in dogs at 8.7 m/k/d.	Rat	Chronic/ Carcinogenicity	45121512; 45121529	09-Sep-15
288008	Aminocyclopyrachlor	Acute Dietary, General Population	--	--	--	--	Acute Neurotoxicity-rat (870.6200a) NOAEL = 2000 mg/kg/day. No acute neurotoxicity.	--	--	--	18-Apr-12
288008	Aminocyclopyrachlor	Chronic Dietary, General Population	2.79	279.00	100	892.00	Decreased body weights, body weight gains, food consumption, and food efficiency in both sexes.	Rat	Chronic/ Carcinogenicity	48333607	18-Apr-12
288009	Aminocyclopyrachlor methyl ester	See Other	--	--	--	--	Same Dose/Endpoints as: Aminocyclopyrachlor, (PC Code 288008).	--	--	--	--
288010	Aminocyclopyrachlor potassium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Aminocyclopyrachlor, (PC Code 288008).	--	--	--	--
005100	Aminopyralid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-Feb-15
005100	Aminopyralid	Chronic Dietary, General Population	0.50	50.00	100	500.00	Cecal enlargement, slight mucosal hyperplasia of the cecum in males; slightly decreased body weights.	Rat	Chronic/ Carcinogenicity	46235615	18-Feb-15
016330	Amisulbrom	Acute Dietary, General Population	2.0	200.00	100	2000.00	Decrease in absolute brain weight in males (7%).	Rat	Acute Neurotoxicity	47918044	31-Mar-11
016330	Amisulbrom	Chronic Dietary, General Population	0.54	54.00	100	96.00	Based on decreased body weight, body weight gains in both sexes, and indications of hepatotoxicity (M) and nephrotoxicity (F).	Rat	Carcinogenicity/ Oncogenicity	47918035	31-Mar-11
106201	Amitraz	Acute Dietary, General Population	0.0125	0.125	10	0.250	Dry mouth, drowsiness, decreased temperature, blood pressure and heart rate.	Human	Special/Other	43283101; 00160964; 46249601	26-Sep-18
106201	Amitraz	Chronic Dietary, General Population	0.0005	0.50	1000	1.50	EOGRTS F1 adult toxicity. Based on decreased T4 levels (↓25%; females only).	Rat	Reproduction	49994401	26-Sep-18
000169	Amyl acetate	See Other	--	--	--	--	Same Dose/Endpoints as: Methyl esters of fatty acids, (PC Code 079034).	--	--	--	--
006314	Antimycin A	None	--	--	--	--	HED believes the resulting risks would also be negligible when the product is used by trained applicators according to the label instructions.	--	--	--	06-Jul-15
110301	Aquashade	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
110301	Aquashade	Chronic Dietary, General Population	5.00	631.00	100	1262.00	Decreased body weight in females. Chronic oral study in Dogs with Tartrazine submitted to FDA is co-critical (No MRID #).	Rat	Chronic/ Carcinogenicity	Borzelleca et al. 1990. Dog Study: FR Notice: 50.#171	15-Sep-15

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
106901	Asulam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jun-17
106901	Asulam	Chronic Dietary, General Population	0.36	36.00	100	180.00	Based on hyperplastic changes in adrenal medulla and in thyroid follicular cells.	Rat	Chronic/ Carcinogenicity	00098543	28-Jun-17
106902	Asulam, sodium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Asulam, (PC Code 106901).	--	--	--	--
080803	Atrazine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Jul-18
080803	Atrazine	Acute Dietary, Females 13-49	0.10	10.00	100	70.00	Based on delayed ossification of certain cranial bones in fetuses.	Rat	Developmental Toxicity	40566302	10-Jul-18
080803	Atrazine	See Other	--	--	--	--	Refer to the Atrazine risk assessment for a detailed description of the Cooper et al. (2010) study, and its use in BMD modeling and PBPK modeling to assess the exposure from other oral, dermal, and inhalation exposure.	--	--	--	10-Jul-18
119016	Azafenidin	Acute Dietary, General Population	1.00	100.00	100	300.00	Discolored urine due to inhibition of heme synthesis, decreased food consumption, and motor activity.	Rat	Acute Neurotoxicity	44075849	23-Sep-00
119016	Azafenidin	Acute Dietary, Females 13-49	0.16	16.00	100	24.00	Increased resorptions, decreased fetal body weight and malformed sternebrae.	Rat	Developmental Toxicity	44075853	23-Sep-00
119016	Azafenidin	Chronic Dietary, General Population	0.003	0.30	100	0.86	Increased ALT levels, hepatocyte enlargement, multiple nuclei, cytoplasmic pigment in liver cells.	Dog	Chronic	44306203; 44306204	23-Sep-00
058001	Azinphos-methyl	Acute Dietary, General Population	0.003	Not Est.	300	1.00	Plasma, RBC and brain ChEI; a NOAEL was not established.	Rat	Acute Neurotoxicity	43360301	26-Oct-01
058001	Azinphos-methyl	Chronic Dietary, General Population	0.0015	0.149	100	0.688	RBC ChEI.	Dog	Chronic	41804801	26-Oct-01
128810	Azoxystrobin	Acute Dietary, General Population	0.67	Not Est.	300	200.00	Based on diarrhea at two-hours post dose at all dose levels tested.	Rat	Acute Neurotoxicity	43678134; 44182013; 44182015	11-Sep-18
128810	Azoxystrobin	Chronic Dietary, General Population	0.18	18.00	100	82.4	Reduced body weight in both sexes, reduced food consumption in males, bile duct lesions in males.	Rat	Chronic/ Carcinogenicity	43678139	11-Sep-18
035605	BBAB	Acute Dietary, General Population	0.05	5.00	100	20.00	Increased salivation was considered to be of toxicological significance due to the irritating properties of this chemical.	Rat	Developmental Toxicity	44750901	18-Nov-99
035605	BBAB	Chronic Dietary, General Population	0.0015	Not Est.	300	4.50	Hyperkeratosis and hyperplasia of the non-glandular mucosa of stomach; edema of stomach in females.	Rat	Subchronic	44757001	18-Nov-99
113510	Benalaxyl-M	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Aug-15
113510	Benalaxyl-M	Chronic Dietary, General Population	0.02	20.00	1000	135.00	Based on an increase in γ-glutamyl transferase (GGT) in males, slight increases liver weight in both sexes, increased incidence of hepatocellular hypertrophy in both sexes, increased incidence of thyroid cell hyperplasia in females, increased incidence of ovarian stromal cell hyperplasia in females.	Rat	Chronic/ Carcinogenicity	49040634	05-Aug-15
105201	Bendiocarb	Acute Dietary, General Population	0.0041	0.125	300	0.25	Whole blood ChEI.	Rat	Acute	00059269	23-Jun-99
105201	Bendiocarb	Chronic Dietary, General Population	0.0041	0.125	300	0.25	Whole blood ChEI.	Rat	Acute	00059269	23-Jun-99
084301	Benfluralin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	16-Mar-17
084301	Benfluralin	Chronic Dietary, General Population	0.005	0.50	100	5.40	Based on increased histopathologic lesions of the kidneys in males and in females.	Rat	Chronic/ Carcinogenicity	44050002; 44545501	16-Mar-17
099101	Benomyl	Acute Dietary, General Population	0.25	25.00	100	50.00	Premature release of germ cells and occlusions of the efferent ductules.	Rat	Acute	Hess et al. 1981	08-Mar-01
099101	Benomyl	Acute Dietary, Females 13-49	0.30	30.00	100	62.50	Increased incidence of microphthalmia.	Rat	Developmental Toxicity	00148393; 00115674; 00126522	08-Mar-01
099101	Benomyl	Chronic Dietary, General Population	0.13	12.50	100	62.50	Hepatic cirrhosis, clinical chemistry alterations, decreased weight gain and food consumption.	Dog	Chronic	00081913; 00097305	08-Mar-01
128820	Bensulfuron methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-Nov-15
128820	Bensulfuron methyl	Chronic Dietary, General Population	0.20	19.90	100	222.60	Discoloration/inflammation of the oral mucosa, elevated SGPT, liver weights, and brown pigment in biliary canaliculi.	Dog	Chronic	40089319	30-Nov-15

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
009801	Bensulide	Acute Dietary, General Population	0.15	15.00	100	50.00	Plasma ChEI in females.	Rat	Acute Neurotoxicity	43195901	16-Jun-99
009801	Bensulide	Chronic Dietary, General Population	0.005	0.50	100	4.00	Plasma ChEI in both sexes and brain in males.	Dog	Chronic	44066401; 44052704	16-Jun-99
275200	Bentazon	See Other	--	--	--	--	Same Dose/Endpoints as: Sodium bentazon, (PC Code 103901).	--	--	--	--
098379	Benthiavalicarb-isopropyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Aug-06
098379	Benthiavalicarb-isopropyl	Chronic Dietary, General Population	0.099	9.90	100	249.6	Nephrotoxicity and hepatotoxicity.	Rat	Chronic	45835017	10-Aug-06
190116	Benzene Sulfonic Acid	See Other	--	--	--	--	Same Dose/Endpoints as: Sodium Dodecylbenzene Sulfonate, (PC Code 079010).	--	--	--	--
215101	Benzobicyclon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Apr-17
215101	Benzobicyclon	Chronic Dietary, General Population	0.636	63.6	100	1320	Based on increased incidence of hydropic degeneration (basophilic cells) in the pituitary.	Rat	Reproduction	48986131	05-Apr-17
122305	Benzovindiflupyr	Acute Dietary, General Population	0.10	10.0	100	30.0	Based on multiple clinical observations, decreases in mean body temperature, decreases in locomotor activity parameters, reduced food consumption and/or decreases in mean grip strength.	Rat	Acute Neurotoxicity	48604455	23-Apr-18
122305	Benzovindiflupyr	Chronic Dietary, General Population	0.082	8.20	100	19.40	Based on decreased body weight and decreased food consumption in parental animals as well as increases in liver weights, centrilobular hepatocellular hypertrophy, increased incidence of cell hypertrophy in the pars distalis of the pituitary, reduced body weight, delayed preputial separation, and decreased spleen weights in the F1 and/or F2 offspring.	Rat	Reproduction	48604449	23-Apr-18
009501	Benzyl Benzoate	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Jun-07
009501	Benzyl Benzoate	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Jun-07
118831	Beta Cyfluthrin	See Other	--	--	--	--	Same Dose/Endpoints as: Cyfluthrin, (PC Code 128831).	--	--	--	--
018986	Bicyclopyrone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-Oct-16
018986	Bicyclopyrone	Acute Dietary, Females 13-49	0.01	Not Est.	1000	10.00	Based on skeletal variations (the appearance of the 27th presacral vertebrae).	Rabbit	Developmental Toxicity	47841996	18-Oct-16
018986	Bicyclopyrone	Chronic Dietary, General Population	0.00028	Not Est.	1000	0.28	Based on a dose dependent increase in the incidence of opaque eyes and corneal damage in both sexes compared to controls, an increased incidence of thyroid follicular hyperplasia in males, and an increased incidence of chronic progressive nephropathy in the kidneys of males.	Rat	Chronic/ Carcinogenicity	47841985	18-Oct-16
000586	Bifenazate	Acute Dietary, General Population	6.00	600.00	100	2000.00	Based on decreased motor activity (rearing in females).	Rat	Acute Neurotoxicity	48395101	25-Jun-14
000586	Bifenazate	Acute Dietary, Females 13-49	0.10	10.00	100	100.00	Based upon clinical signs, decreased body weight and food consumption during the dosing period.	Rat	Prenatal Developmental Toxicity	44464945	25-Jun-14
000586	Bifenazate	Chronic Dietary, General Population	0.01	1.00	100	8.90	Changes in hematological and clinical chemistry parameters and histopathology in bone marrow, liver and kidney.	Dog	Chronic	45052221; 45052222	25-Jun-14
128825	Bifenthrin	Acute Dietary, General Population	0.031	BMDL = 3.1	100	BMD = 4.1	Based on decreased locomotor activity; supported by multiple guideline studies.	Rat	Special/Other	Wolansky et al. 2006; 47885701	17-May-18
128825	Bifenthrin	Acute Dietary, Infants and Children	0.031	BMDL = 3.1	100	BMD = 4.1	Based on decreased locomotor activity; supported by multiple guideline studies.	Rat	Special/Other	Wolansky et al. 2006; 47885701	17-May-18
128825	Bifenthrin	Chronic Dietary, General Population	--	--	--	--	Acute endpoints are protective of longer-term exposure.	--	--	--	17-May-18
004003	Bioallethrin (D-trans Allethrin)	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	03-Sep-14
004003	Bioallethrin (D-trans Allethrin)	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	03-Sep-14
078906	Bispyribac-sodium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Sep-18
078906	Bispyribac-sodium	Chronic Dietary, General Population	0.10	10.00	100	100.00	Based on dose-related increases in hyperplasia of the intrahepatic bile ducts in males and females and granulation of the liver in the females.	Dog	Chronic	44889134	25-Sep-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
117801	Bitertanol	Acute Dietary, Females 13-49	0.05	50.00	1000	150.00	Nominal increased incidence of malformations, increased resorptions, post-implantation loss, decreased fetal weight and delayed ossification.	Rabbit	Developmental Toxicity	40490801	30-Nov-05
117801	Bitertanol	Chronic Dietary, General Population	0.0021	2.11	1000	8.18	Adrenal vacuolation.	Dog	Chronic	00157466; 00157465	30-Nov-05
128400	Bixafen	Acute Dietary, General Population	2.50	250.00	100	1000.00	Based on statistically significant decreases in motor activity in both sexes and decreased rearing counts in females approximately 4 hours following a single oral dose.	Rat	Acute Neurotoxicity	49877279	18-Jul-18
128400	Bixafen	Chronic Dietary, General Population	0.03	2.80	100	17.40	Based on thyroid effects (follicular cell hypertrophy, alteration of the thyroid colloid at interim and terminal sacrifice).	Rat	Chronic/ Carcinogenicity	49877272; 49877273	18-Jul-18
011102	Borax	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
011001	Boric acid	Acute Dietary, General Population	--	--	--	--	A dietary risk assessment is not required since contribution of boron residues from food/feed crop application is not considered to be significant.	--	--	--	01-Dec-15
011001	Boric acid	Chronic Dietary, General Population	--	--	--	--	A dietary risk assessment is not required since contribution of boron residues from food/feed crop application is not considered to be significant.	--	--	--	01-Dec-15
011107	Boron Sodium Oxide	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
011103	Boron Sodium Oxide, Tetrahydrate	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
128008	Boscalid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-May-18
128008	Boscalid	Chronic Dietary, General Population	0.218	21.80	100	57.40	Based on the combined results of the chronic toxicity and chronic toxicity/carcinogenicity studies in rats and the chronic toxicity study in dogs which showed thyroid and liver toxicity in both species.	Dog	Chronic	45404826; 45404827; 45404828	30-May-18
012301	Bromacil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-Dec-16
012301	Bromacil	Acute Dietary, Females 13-49	1.0	100.00	100	300.00	Based on increased incidences of resorptions.	Rabbit	Developmental Toxicity	40984801	14-Dec-16
012301	Bromacil	Chronic Dietary, General Population	0.0196	1.96	100	9.82	Based on decreases in mean absolute body weight and decreased food efficiency.	Rat	Chronic/ Carcinogenicity	41261701	14-Dec-16
012302	Bromacil, lithium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Bromacil, (PC Code 012301).	--	--	--	--
035301	Bromoxynil	Acute Dietary, General Population	0.08	8.00	100	12.00	Increased incidence of panting on day 1.	Dog	Subchronic	43166701	26-Sep-18
035301	Bromoxynil	Acute Dietary, Females 13-49	0.04	4.00	100	5.00	Increases in supernumerary ribs.	Rat	Developmental Toxicity	40466802; 00116558	26-Sep-18
035301	Bromoxynil	Chronic Dietary, General Population	0.015	1.50	100	7.50	Based on increased incidences of panting and decreased absolute body weight.	Dog	Chronic	40780301; 41304701	26-Sep-18
128920	Bromoxynil heptanoate	See Other	--	--	--	--	Same Dose/Endpoints as: Bromoxynil, (PC Code 035301).	--	--	--	--
035302	Bromoxynil octanoate	See Other	--	--	--	--	Same Dose/Endpoints as: Bromoxynil, (PC Code 035301).	--	--	--	--
120503	Bromuconazole	Acute Dietary, General Population	--	--	--	--	Non-food Use Chemical. Based on the limited use pattern for this registration, an acute dietary scenario is not anticipated.	--	--	--	16-Feb-17
120503	Bromuconazole	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical. Based on the limited use pattern for this registration, a chronic dietary scenario is not anticipated.	--	--	--	16-Feb-17
275100	Buprofezin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Sep-17
275100	Buprofezin	Acute Dietary, Females 13-49	2.00	200.00	100	800.00	Incomplete ossification and decreased fetal weights.	Rat	Developmental Toxicity	42873813	27-Sep-17
275100	Buprofezin	Chronic Dietary, General Population	0.033	Not Est.	300	10.0	Based on significantly decreased pup body weight (↓8-13% in males during LD 4-10 and ↓8-9% in females during LD 4-7) compared to controls and increased TSH levels on LD 4 and LD 21 (↑23-34% in males).	Rat	Special/Other	49615301	27-Sep-17
122004	Butafenacil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-Jul-03
122004	Butafenacil	Chronic Dietary, General Population	0.012	1.20	100	6.96	Enlarged liver with increased weights and histopathological lesions of the liver.	Mouse	Carcinogenicity	45394625	11-Jul-03
011901	Butoxypolypropylene Glycol	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	21-Sep-07
011901	Butoxypolypropylene Glycol	Chronic Dietary, General Population	1.20	1000.00; Oral Equiv: 120	100	4000.00	Reduced body weight gain and changes in hematological parameters.	Rat	Subchronic	42269901	21-Sep-07

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
106501	Butralin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	21-Dec-17
106501	Butralin	Acute Dietary, Females 13-49	0.082	8.2	100	27.0	Based on increased incidence of enlarged fontanelles and arthrogryposis.	Rabbit	Developmental Toxicity	40419601; 41742002; 42156104	21-Dec-17
106501	Butralin	Chronic Dietary, General Population	0.10	10.0	100	51.0	Based on decreased male body weight, alterations in hematology and clinical chemistry and liver and thyroid morphological alterations (thyroid epithelial hypertrophy).	Rat	Subchronic	43652701	21-Dec-17
041405	Butylate	Acute Dietary, General Population	6.00	600.00	100	2000.00	Degenerate nerve fibers (sciatic nerve); brain neuronal cell necrosis (males); salivation, tip-toe gait (females), lacrimation (males), oral-nasal staining (males), urinary incontinence (females).	Rat	Acute Neurotoxicity	43514101; 43967901	26-Feb-01
041405	Butylate	Acute Dietary, Females 13-49	0.40	40.00	100	400.00	Decreased fetal weights and increased incidences of misaligned sternebrae.	Rat	Developmental Toxicity	00131032	26-Feb-01
041405	Butylate	Chronic Dietary, General Population	0.05	5.00	100	25.00	Increased relative liver weights.	Dog	Chronic	40389101	26-Feb-01
012501	Cacodylic acid	Acute Dietary, General Population	0.12	12.00	100	36.00	Decreased fetal body weights, shorter crown-rump length, suggestion of diaphragmatic hernia, delayed/lack of ossification of numerous bones. Co-critical with Dev. Rabbit (LOAEL) = 48.	Rat	Developmental Toxicity	40625701; 40663301	21-Jun-06
012501	Cacodylic acid	Chronic Dietary, General Population	0.014	BMDL10 = 0.43	30	0.92	Regenerative proliferation.	Rat	Special/Other	Arnold et al. 1999	21-Jun-06
012502	Cacodylic acid, sodium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Cacodylic acid, (PC Code 012501).	--	--	--	--
128864	Cadusafos	Acute Dietary, General Population	0.00002	0.02	1000	0.10	Plasma ChEI at day 3.	Dog	Subchronic	40017902	17-Jul-98
128864	Cadusafos	Chronic Dietary, General Population	0.000001	0.001	1000	0.005	Plasma ChEI.	Dog	Chronic	40017901	17-Jul-98
081301	Captan	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Sep-18
081301	Captan	Acute Dietary, Females 13-49	0.10	10.00	100	30.00	Increased skeletal defects (27 pre-sacral vertebrae) ($p < 0.01$) in both fetuses and litters.	Rabbit	Developmental Toxicity	41825901	26-Sep-18
081301	Captan	Chronic Dietary, General Population	0.13	12.50	100	25.00	Decreases in pup and litter weights.	Rat	Reproduction	00120315; 00125293	26-Sep-18
056801	Carbaryl	Acute Dietary, General Population	0.01	BMDL10 = 1.1	100	BMD10 = 1.5	Based on brain AChE inhibition in post-natal day 11 (PND 11) pups.	Rat	Comparative Cholinesterase Assay	47007001	30-Mar-17
056801	Carbaryl	Chronic Dietary, General Population	--	--	--	--	A quantitative chronic assessment is not considered appropriate for carbaryl because there are no chronic non-cancer effects that are more sensitive than AChEI.	--	--	--	30-Mar-17
128872	Carbendazim (MBC)	Acute Dietary, General Population	0.17	Not Est.	300	50.00	Premature release of germ cells, decrease in somniferous tubule diameter, atrophy of somniferous tubules and abnormal growth of efferent ductules, Nakai et al 1992.	Rat	Acute	--	25-Apr-02
128872	Carbendazim (MBC)	Acute Dietary, Females 13-49	0.10	10.00	100	20.00	Decreased fetal body weight and increases in skeletal variations and malformations.	Rat	Developmental Toxicity	40438001	25-Apr-02
128872	Carbendazim (MBC)	Chronic Dietary, General Population	0.025	2.50	100	12.50	Swollen, vacuolated hepatic cells, cirrhosis, and chronic hepatitis.	Dog	Chronic	00088333	25-Apr-02
090601	Carbofuran	Acute Dietary, General Population	0.0002	BMDL10 = 0.02	100	BMD10 = 0.06	RBC ChEI in adult rats (Special Comparative AChE Study).	Rat	Special/Other	47289001; Padilla et al. 2007; McDaniel et al. 2007; 10/23/07 Carbofuran Rat RBC BMD	03-Jan-08
090601	Carbofuran	Acute Dietary, Infants and Children	0.0003	BMDL10 = 0.03	100	BMD10 = 0.04	Brain cholinesterase inhibition in pups on PND 11 (Special Comparative AChE Study).	Rat	Special/Other	46688912; 46688913; 46688914	03-Jan-08
090601	Carbofuran	Chronic Dietary, General Population	--	--	--	--	See Acute Dietary RfD - Protective of chronic exposures. Carbofuran-induced inhibition of AChE activity is reversible (within 24 hours). Longer exposure could be considered as a series of acute exposures.	--	--	--	03-Jan-08

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
090201	Carboxin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	17-Dec-03
090201	Carboxin	Chronic Dietary, General Population	0.008	0.80	100	9.00	Decreases in body weight, body weight gain, increased water consumption, increased urine volume, decreased urine specific gravity, renal lesions.	Rat	Chronic/ Carcinogenicity	41882902; 42391102; 4231106	17-Dec-03
128712	Carfentrazone-ethyl	Acute Dietary, General Population	--	--	--	--	Increased incidences of salivation and decreased motor activity.	--	--	--	17-Nov-15
128712	Carfentrazone-ethyl	Chronic Dietary, General Population	0.03	3.00	100	12.00	Increased microscopic red fluorescence (liver pigment). Increased urinary porphyrin in both sexes.	Rat	Chronic/ Carcinogenicity	44076501	17-Nov-15
090100	Chlorantraniliprole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Dec-13
090100	Chlorantraniliprole	Chronic Dietary, General Population	1.58	158.00	100	935.00	Eosinophilic foci accompanied by hepatocellular hypertrophy and increased liver weight.	Mouse	Chronic	46979720	09-Dec-13
129006	Chlorethoxyfos	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.0014	BMDL10 = 0.14	100	BMD10 = 0.20	AChE inhibition of RBC in the PND 11 females rats.	Rat	Comparative Cholinesterase Assay	48641306	22-Jun-16
129006	Chlorethoxyfos	Acute Dietary, Adults 50-99 Years	0.0014	BMDL10 = 0.14	100	BMD10 = 0.20	AChE inhibition of RBC in the PND 11 females rats.	Rat	Comparative Cholinesterase Assay	48641306	22-Jun-16
129006	Chlorethoxyfos	Steady State Dietary, Adults 50-99 Years	0.0005	BMDL10 = 0.05	100	BMD10 = 0.10	AChE inhibition of RBC in PND 11 female rats.	Rat	Comparative Cholinesterase Assay	48641305	22-Jun-16
129006	Chlorethoxyfos	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0005	BMDL10 = 0.05	100	BMD10 = 0.10	AChE inhibition of RBC in PND 11 female rats.	Rat	Comparative Cholinesterase Assay	48641305	22-Jun-16
129093	Chlorfenapyr	Acute Dietary, General Population	0.05	5.00	100	10.00	Based on increased pup deaths (post-natal days 1-4) and decreased motor activity.	Rat	Developmental Neurotoxicity	46740201	18-Oct-17
129093	Chlorfenapyr	Chronic Dietary, General Population	0.05	5.00	100	10.00	Based on increased pup deaths and decreased motor activity.	Rat	Developmental Neurotoxicity	46740201; 43492833	18-Oct-17
098801	Chlorflurenol Methyl Ester	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	10-Jul-06
098801	Chlorflurenol Methyl Ester	Chronic Dietary, General Population	0.10	30.60	300	94.00	Decreased erythrocyte, hemoglobin and hematocrit at 4 weeks.	Dog	Chronic	00082863	10-Jul-06
128901	Chlorimuron-ethyl	Acute Dietary, General Population	1.00	100.00	100	500.00	Based on reduced arousal and reduced motor activity in male and female rats.	Rat	Acute Neurotoxicity	48704302	15-Sep-15
128901	Chlorimuron-ethyl	Chronic Dietary, General Population	0.09	9.00	100	42.70	Based on hematologic changes (increased hematocrit, hemoglobin, erythrocyte counts in mid and high dose dogs) atrophy of thymus and prostate, increased absolute and relative liver weights.	Dog	Subchronic	00149579; 00132745	15-Sep-15
020503	Chlorine dioxide	Acute Dietary, General Population	0.03	3.00	100	14.00	Depression of serum T4 levels and delays in development of locomotor and exploratory behavior activity.	Rat	Developmental Toxicity	Orme et al. 1985	08-Dec-99
020503	Chlorine dioxide	Chronic Dietary, General Population	0.03	3.00	100	14.00	Depression of serum T4 levels and delays in development of locomotor and exploratory behavior activity.	Rat	Developmental Toxicity	Orme et al. 1985	08-Dec-99
018101	Chlormequat chloride	Acute Dietary, General Population	1.0	100.00	100	180.00	Based on overt toxicity signs (tremors, ataxia) within an hour after a single oral dose in dams (GD 6).	Rat	Developmental Toxicity	42246604; 50182001	27-Feb-18
018101	Chlormequat chloride	Chronic Dietary, General Population	0.05	5.00	100	10.00	Based on salivation (1 week postdosing, both sexes), vomiting (females), diarrhea (males), and decreased body weight gain (males).	Dog	Chronic	46715201	27-Feb-18
027301	Chloroneb	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-Dec-04
027301	Chloroneb	Chronic Dietary, General Population	0.013	12.50	1000	62.5	Body weight loss, increased absolute and relative liver weight, increased ALT and/or alkaline phosphatase, hepatocyte pigmentation, moderate thyroid activity, and catarrhal gastritis in both sexes.	Dog	Chronic	00001421	30-Dec-04
081901	Chlorothalonil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Oct-08
081901	Chlorothalonil	Chronic Dietary, General Population	0.02	2.00	100	4.00	Epithelial cell hyperplasia, clear cell hyperplasia and karyomegaly in the kidneys of male rats.	Rat	Chronic/ Carcinogenicity	41250502	09-Oct-08

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
018301	Chlorpropham	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Sep-17
018301	Chlorpropham	Chronic Dietary, General Population	0.005	5.00	1000	50.00	Based on increased thyroid weight and histopathological changes in both sexes, statistically significant decreases in thyroxine (T4) levels seen at week 14 in males.	Dog	Chronic	42189501	27-Sep-17
059101	Chlorpyrifos	See Other	--	--	--	--	Refer to the chlorpyrifos risk assessment for a description of Points of Departure for various lifestages, routes, and scenarios derived at the acute and steady state durations using BMD modeling and PBPK modeling.	--	--	--	29-Dec-14
059102	Chlorpyrifos methyl	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.01	1.00	100	12.50	Based on inhibition of RBC cholinesterase.	Rat	Developmental Toxicity	44680603	15-Sep-15
059102	Chlorpyrifos methyl	Acute Dietary, Adults 50-99 Years	0.01	1.00	100	12.50	Based on inhibition of RBC cholinesterase.	Rat	Developmental Toxicity	44680603	15-Sep-15
059102	Chlorpyrifos methyl	Steady State Dietary, Adults 50-99 Years	0.01	1.00	100	50.00	Based on RBC Che Inhibition.	Rat	Chronic/ Carcinogenicity	42269001; 44906902; 45048301; 44680603	15-Sep-15
059102	Chlorpyrifos methyl	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.01	1.00	100	50.00	Based on RBC Che Inhibition.	Rat	Chronic/ Carcinogenicity	42269001; 44906902; 45048301; 44680603	15-Sep-15
118601	Chlorsulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-Sep-15
118601	Chlorsulfuron	Chronic Dietary, General Population	0.05	5.00	100	25.00	Decreased body weight.	Rat	Chronic/ Carcinogenicity	00086003	14-Sep-15
078701	Chlorthal-dimethyl (DCPA)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Jul-02
078701	Chlorthal-dimethyl (DCPA)	Chronic Dietary, General Population	0.01	1.00	100	10.00	Decreased levels of thyroid hormone, thyroxine and histopathological lesions of the thyroid and liver.	Rat	Chronic/ Carcinogenicity	42731001	08-Jul-02
021101	Chromic acid	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Aug-01
021101	Chromic acid	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Aug-01
121011	Clethodim	Acute Dietary, General Population	1.00	100.00	100	1000.00	Based on clinical observation from two acute neurotoxicity studies (one study was conducted in 2006 and another was completed in 2012). The clinical observation included decreased spontaneous activity, ruffled fur, head tilt, and hunched posture.	Rat	Acute Neurotoxicity	48788502; 48141801	19-Mar-18
121011	Clethodim	Chronic Dietary, General Population	0.30	30.00	100	150.00	Based on reduced survival; decreased red cell mass; and increased incidences of bile duct hyperplasia, of pigmentation of the liver, and of foci of amphophilic macrophages in the lung.	Mouse	Carcinogenicity	41030112	19-Mar-18
125203	Clodinafop-propargyl	Acute Dietary, General Population	1.0	100.00	100	300.00	Based on demyelination of proximal tibial nerve in males.	Rat	Acute Neurotoxicity	46012922; 46012947	15-Mar-17
125203	Clodinafop-propargyl	Acute Dietary, Females 13-49	0.05	5.00	100	40.00	Based on increased bilateral distension and torsion of ureters, unilateral 14th rib & incomplete ossification of metacarpals & cranial bones.	Rat	Developmental Toxicity	44399145	15-Mar-17
125203	Clodinafop-propargyl	Chronic Dietary, General Population	0.0032	0.32	100	10.2	Based on toxicity in the liver (increased weight, clinical chemistry, and histopathology) and kidneys (increased weight, nephropathy, and tubular pigmentation) in both sexes.	Rat	Chronic/ Carcinogenicity	44399147	15-Mar-17
125501	Clofentezine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	13-May-19
125501	Clofentezine	Chronic Dietary, General Population	0.013	1.25	100	25.00	Elevated serum cholesterol, triglycerides, alkaline phosphatase. Hepatocyte enlargement concurrent with eosinophilic cytoplasm, increased liver weight.	Dog	Chronic	00149491	13-May-19
125401	Clomazone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	23-Oct-18
125401	Clomazone	Acute Dietary, Females 13-49	1.00	100.00	100	300.00	Delayed ossification in the form of either partial ossification or the absence of manubrium, sternebrae 3-4, xiphoid, caudal vertebrae, and meta-carpals.	Rat	Developmental Toxicity	00150291	23-Oct-18
125401	Clomazone	Chronic Dietary, General Population	0.84	84.40	100	273.00	Based on decreased body weight, body weight gain, food consumption and increased absolute and relative liver weight in females and increased absolute liver weight in males observed in the subchronic rat study.	Rat	Chronic/ Carcinogenicity	00132586; 00132586; 00151108	23-Oct-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
117403	Clopyralid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Feb-19
117403	Clopyralid	Chronic Dietary, General Population	0.15	15.00	100	150.00	Based on increased epithelial hyperplasia and thickening of the limiting ridge of the stomach in both sexes.	Rat	Chronic/ Carcinogenicity	00162393; 00162434	25-Feb-19
117401	Clopyralid Monoethanolamine Salt	See Other	--	--	--	--	Same Dose/Endpoints as: Clopyralid, (PC Code 117403).	--	--	--	--
117423	Clopyralid potassium	See Other	--	--	--	--	Same Dose/Endpoints as: Clopyralid, (PC Code 117403).	--	--	--	--
117404	Clopyralid, triethanolamine	See Other	--	--	--	--	Same Dose/Endpoints as: Clopyralid, (PC Code 117403).	--	--	--	--
700099	Cloquintocet-mexyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Nov-05
700099	Cloquintocet-mexyl	Acute Dietary, Females 13-49	1.00	100.00	100	400.00	Higher incidence of skeletal variants and decrease in fetal body weights.	Rat	Developmental Toxicity	44387429	29-Nov-05
700099	Cloquintocet-mexyl	Chronic Dietary, General Population	0.04	4.30	100	41.20	Increased incidence of thyroid follicular epithelial hyperplasia.	Rat	Chronic/ Carcinogenicity	44387431	29-Nov-05
129116	Cloransulam-Methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Sep-17
129116	Cloransulam-Methyl	Chronic Dietary, General Population	0.10	10.00	100	100.00	Based on hypertrophy of the collecting ducts and/or vacuolation, consistent with the fatty changes in the kidneys of P1 and P2 males.	Rat	Reproduction	43668911	20-Sep-17
044309	Clothianidin	Acute Dietary, General Population	0.25	25.00	100	50.00	Transient signs of decreased spontaneous motor activity, tremors an deep respiration in mice.	Mouse	Special/Other	45422823	30-Jan-19
044309	Clothianidin	Acute Dietary, Females 13-49	0.25	25.00	100	75.00	Increased litter incidence of a missing lobe of the lung.	Rabbit	Developmental Toxicity	45422712; 45422713	30-Jan-19
044309	Clothianidin	Chronic Dietary, General Population	0.098	9.80	100	31.20	Decreased weight gains and delayed sexual maturation, decreased absolute thymus weight in F1 pups and increase in still births in both generations.	Rat	Reproduction	45422714; 45422715; 45422716	30-Jan-19
025004	Coal tar creosote	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	12-May-99
025004	Coal tar creosote	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	12-May-99
023401	Copper Compounds	None	--	--	--	--	Quantitative dietary and occupational/residential exposure assessments have not been conducted due to lack of systemic toxicity and minimal contribution of copper in the diet (food and water) from pesticidal uses of copper.	--	--	--	29-Jun-06
036501	Coumaphos	Acute Dietary, General Population	0.0025	0.25	100	0.50	Plasma, RBC and Brain ChEI in PND 11 neonatal males and females.	Rat	Comparative Cholinesterase Assay	46258301	28-Feb-07
036501	Coumaphos	Chronic Dietary, General Population	0.0003	0.025	100	0.77	Plasma ChEI and RBC ChEI in both male and female dogs.	Dog	Chronic	43055301	28-Feb-07
027902	Cumyluron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Aug-08
027902	Cumyluron	Chronic Dietary, General Population	0.027	2.70	100	10.80	Increased incidence of slight eosinophilic bodies in the kidneys of males and chronic nephropathy as well as kidney lymphocytic infiltration and fibrosis in females.	Rat	Chronic/ Carcinogenicity	47181524	28-Aug-08
090098	Cyantraniliprole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Jun-18
090098	Cyantraniliprole	Chronic Dietary, General Population	0.01	1.00	100	6.00	Based on effects indicative of liver toxicity (increased liver weights and alkaline phosphatase activity) and significant decreases in albumin level.	Dog	Chronic	48119960	20-Jun-18
081402	Cyanuric acid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-Jan-01
081402	Cyanuric acid	Acute Dietary, Females 13-49	2.00	200.00	100	500.00	Increased incidence of hydrocephaly.	Rabbit	Developmental Toxicity	42054101	30-Jan-01
081402	Cyanuric acid	Chronic Dietary, General Population	1.50	154.00	100	371.00	Decreased survival and lesions of the urinary tract and heart.	Rat	Chronic/ Carcinogenicity	00126362	30-Jan-01
085651	Cyazofamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jun-19
085651	Cyazofamid	Chronic Dietary, General Population	0.948	94.80	100	985.00	Increased incidences of skin lesions in males.	Mouse	Carcinogenicity	45408932	24-Jun-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
026201	Cyclanilide	Acute Dietary, General Population	0.50	50.00	100	150.00	Gait abnormalities, increased abdominal muscle tone, and slightly decreased motor activity.	Rat	Acute Neurotoxicity	43368435	21-Sep-16
026201	Cyclanilide	Chronic Dietary, General Population	0.002	Not Est.	1000	1.90	Reduced pre-mating body weights of F1 males and females and increased renal mineralization of adult F1 females.	Rat	Reproduction	43868313	21-Sep-16
026202	Cyclaniliprole	None	--	--	--	--	Based on the analysis of the available cyclaniliprole toxicological studies, there is no adverse toxicity seen in any of the required submitted toxicology studies, and no toxicity endpoints or points of departure are established for risk assessment. As a result, no dietary, residential, occupational, or aggregate exposure assessments are required at this time.	--	--	--	25-Apr-17
041301	Cycloate	Acute Dietary, General Population	0.067	Not Est.	3000	200.00	Histological alterations of the CNS consisting of neuronal cell necrosis in the pyriform cortex and/or the dentate gyrus.	Rat	Acute Neurotoxicity	42921701; 43968001	28-Jan-04
041301	Cycloate	Chronic Dietary, General Population	0.005	0.50	100	3.10	Spinal nerve axonal atrophy and femoral nerve alterations in females.	Rat	Chronic/ Carcinogenicity	00137735	28-Jan-04
555550	Cyflufenamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-Dec-17
555550	Cyflufenamid	Chronic Dietary, General Population	0.044	4.40	100	22.00	Based on decreased body weight gain; increased thyroid/parathyroid weight, increased liver weight and centrilobular hepatocytic hypertrophy.	Rat	Chronic/ Carcinogenicity	47620511	14-Dec-17
138831	Cyflumetofen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	04-Mar-19
138831	Cyflumetofen	Chronic Dietary, General Population	0.17	16.5	100	30.6	Based on effects on the adrenals (increased organ weights and histopathology) which is the target organ.	Rat	Chronic/ Carcinogenicity	48542696; 48542697; 48542682; 48542702	04-Mar-19
128831	Cyfluthrin	Acute Dietary, General Population	0.0117	BMDL1SD = 1.17	100	BMDl1SD = 1.42	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	01-Sep-17
128831	Cyfluthrin	Acute Dietary, Infants and Children	0.0117	BMDL1SD = 1.17	100	BMDl1SD = 1.42	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	01-Sep-17
128831	Cyfluthrin	Chronic Dietary, General Population	--	--	--	--	The acute dietary exposure assessment is protective of chronic dietary exposures.	--	--	--	01-Sep-17
082583	Cyhalofop-butyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-May-18
082583	Cyhalofop-butyl	Chronic Dietary, General Population	0.01	1.0	100	10.00	Based on kidney effects in females including tubular dilatation, chronic glomerulonephritis, and hyaline casts.	Mouse	Carcinogenicity	45000418	30-May-18
128867	Cyhalothrin	See Other	--	--	--	--	Same Dose/Endpoints as: Lambda Cyhalothrin, (PC Code 128897).	--	--	--	--
101601	Cyhexatin	Acute Dietary, General Population	0.0067	1.99	300	10.94	Decreased body weight and food consumption, clinical signs, and FOB findings.	Rat	Subchronic Neurotoxicity	45053801	21-Apr-05
101601	Cyhexatin	Acute Dietary, Females 13-49	0.005	0.50	100	0.75	Hydrocephaly; the endpoint is based on weight of evidence from 4 studies.	Rabbit	Developmental Toxicity	00164731; 40300901; 43752501; 44004803	21-Apr-05
101601	Cyhexatin	Chronic Dietary, General Population	0.0025	0.25	100	0.50	Increased kidney weight (females only).	Dog	Chronic	00263858	21-Apr-05
129106	Cymoxanil	Acute Dietary, General Population	0.50	50.00	100	100.00	Based on decreased pup survival on PND 1.	Rat	Developmental Neurotoxicity	45377901	30-Sep-16
129106	Cymoxanil	Acute Dietary, Females 13-49	0.08	8.00	100	32.00	Based on increased incidence of cleft palate and hydrocephalus.	Rabbit	Developmental Toxicity	43640503; 43616523	30-Sep-16
129106	Cymoxanil	Chronic Dietary, General Population	0.03	3.00	100	6.00	Based on decreased body weight in males.	Dog	Chronic	46749811	30-Sep-16
109702	Cypermethrin	Acute Dietary, General Population	0.0716	BMDL = 7.16	100	BMD = 11.20	Based on motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	21-Dec-17
109702	Cypermethrin	Acute Dietary, Infants and Children	0.0716	BMDL = 7.16	100	BMD = 11.20	Based on motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	21-Dec-17

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
129013	Cyphenothrin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	16-Dec-16
129013	Cyphenothrin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	16-Dec-16
128993	Cyproconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Jun-19
128993	Cyproconazole	Acute Dietary, Females 13-49	0.02	2.00	100	10.00	Increased incidence of malformed fetuses and litters with malformed fetuses.	Rabbit	Developmental Toxicity	42175401	26-Jun-19
128993	Cyproconazole	Chronic Dietary, General Population	0.01	1.00	100	3.20	P450 induction in females and histopathology, laminar eosinophilic intrahepatocytic bodies in males.	Dog	Chronic	41212901	26-Jun-19
288202	Cyprodinil	Acute Dietary, General Population	2.00	200.00	100	600.00	Based on clinical signs of toxicity (hunched posture, piloerection and reduced responsiveness to sensory stimuli, reduced motor activity and hypothermia).	Rat	Acute Neurotoxicity	48304202	02-May-18
288202	Cyprodinil	Chronic Dietary, General Population	0.027	2.70	100	35.60	Degenerative liver lesions (Spongiosis hepatitis) in males.	Rat	Chronic/ Carcinogenicity	43737602	02-May-18
877400	Cyprosulfamide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-May-08
877400	Cyprosulfamide	Chronic Dietary, General Population	0.39	39.00	100	159.00	Sulfonamide-like crystals in urine and treatment-related nephropathy in kidney and urinary bladder.	Rat	Chronic/ Carcinogenicity	47069817	30-May-08
121301	Cyromazine	Acute Dietary, General Population	0.83	Not Est.	300	250.00	Based on the decreased motor activity (mean cumulative ambulatory LMA counts (down 44%) in males at the time of peak effect on Day 0, and decreased food consumption ($p < .01$, down 17.4%) on Day 1.	Rat	Acute Neurotoxicity	49109701	27-Feb-14
121301	Cyromazine	Chronic Dietary, General Population	0.50	50.00	100	150.00	Decreased body weight and food efficiency.	Rat	Reproduction	00103197; 00103202; 00115735	27-Feb-14
004005	d-Allethrin (Pynamin Forte)	See Other	--	--	--	--	Same Dose/Endpoints as: Bioallethrin (D-trans Allethrin), (PC Code 004003).	--	--	--	--
028501	Dantochlor (BCDMH)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Aug-00
028501	Dantochlor (BCDMH)	Acute Dietary, Females 13-49	1.00	100.00	100	500.00	Increased incidence of skeletal variations.	Rabbit	Developmental Toxicity	42413101	28-Aug-00
028501	Dantochlor (BCDMH)	Chronic Dietary, General Population	3.00	300.00	100	1000.00	Decreases in body weight, body weight gain in females and hyperplasia of submandibular lymph nodes in males.	Rat	Chronic/ Carcinogenicity	43397701	28-Aug-00
028501	Dantochlor (BCDMH)	Chronic Dietary, Females 13-49	1.00	100.00	100	500.00	Increased incidence of skeletal variations. A separate Females 13-49 selected since Developmental NOAEL was the lowest of the database.	Rabbit	Developmental Toxicity	42413101	28-Aug-00
035602	Dazomet	Acute Dietary, General Population	--	--	--	--	Not established. Dietary exposure is not expected.	--	--	--	28-Sep-18
035602	Dazomet	Chronic Dietary, General Population	--	--	--	--	Not established. Dietary exposure is not expected.	--	--	--	28-Sep-18
069149	DDAC, Didecyl dimethyl ammonium chloride	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-Apr-00
069149	DDAC, Didecyl dimethyl ammonium chloride	Acute Dietary, Females 13-49	0.10	10.00	100	20.00	Increased incidence of skeletal variations.	Rat	Developmental Toxicity	41886701	11-Apr-00
069149	DDAC, Didecyl dimethyl ammonium chloride	Chronic Dietary, General Population	0.10	10.00	100	20.00	Decreased total cholesterol levels in females.	Dog	Chronic	41970401	11-Apr-00
098002	DDBSA	See Other	--	--	--	--	Same Dose/Endpoints as: Sodium Dodecylbenzene Sulfonate, (PC Code 079010).	--	--	--	--
097805	Deltamethrin	Acute Dietary, General Population	0.015	BMDL1SD = 1.49	100	BMD1SD = 2.48	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	03-Sep-18
097805	Deltamethrin	Acute Dietary, Infants and Children	0.015	BMDL1SD = 1.49	100	BMDL1SD = 2.48	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	03-Sep-18
097805	Deltamethrin	Chronic Dietary, General Population	--	--	--	--	The acute dietary exposure assessment is protective of chronic dietary exposures.	--	--	--	03-Sep-18
577501	Demiditraz	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	11-Apr-13
577501	Demiditraz	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	11-Apr-13

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
104801	Desmedipham	Acute Dietary, General Population	0.10	10.00	100	100.00	Increase in methemoglobin.	Rat	Developmental Toxicity	00156725	01-Feb-07
104801	Desmedipham	Chronic Dietary, General Population	0.04	4.00	100	20.00	Hemolytic anemia. Increases in spleen weight and compensatory functioning of the thyroid.	Rat	Reproduction	40387105	01-Feb-07
600158	Diaminochlrotrizine (DACT)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Apr-02
600158	Diaminochlrotrizine (DACT)	Acute Dietary, Females 13-49	0.10	10.00	100	70.00	Delayed or lack of ossification of several sites, decreased suckling induced PRL release and increased incidence of prostatitis.	Rat	Developmental Toxicity	40566302	05-Apr-02
600158	Diaminochlrotrizine (DACT)	Chronic Dietary, General Population	0.018	1.80	100	3.65	Estrous cycle alterations and LH surge attenuation.	Rat	Subchronic	44152102	05-Apr-02
057801	Diazinon	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.03	BMDL10 = 3.0	100	BMD10 = 3.4	Inhibition of RBC AChE in female pups (PND 11).	Rat	Comparative Cholinesterase Assay	46166301	10-Jun-16
057801	Diazinon	Acute Dietary, Adults 50-99 Years	0.03	BMDL10 = 3.0	100	BMD10 = 3.4	Inhibition of RBC AChE in female pups (PND 11).	Rat	Comparative Cholinesterase Assay	46166301	10-Jun-16
057801	Diazinon	Steady State Dietary, Adults 50-99 Years	0.0035	BMDL10 = 0.35	100	BMD10 = 0.52	Inhibition of RBC AChE in female pups (PND 11).	Rat	Comparative Cholinesterase Assay	46166302	10-Jun-16
057801	Diazinon	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0035	BMDL10 = 0.35	100	BMD10 = 0.52	Inhibition of RBC AChE in female pups (PND 11).	Rat	Comparative Cholinesterase Assay	46166302	10-Jun-16
077802	Dibutyl succinate	See Other	--	--	--	--	Same Dose/Endpoints as: Methyl esters of fatty acids, (PC Code 079034).	--	--	--	
029801	Dicamba	Acute Dietary, General Population	0.29	29.00	100	86.00	Based on ataxia, unsteady gait and convulsions observed shortly after dosing.	Rat	Developmental Toxicity	49441802	29-Mar-16
029801	Dicamba	Chronic Dietary, General Population	0.04	4.00	100	37.00	Decreased pup growth (decreased pup weights).	Rat	Reproduction	47899517	29-Mar-16
100094	Dicamba BAPMA Salt	See Other	--	--	--	--	Same Dose/Endpoints as: Dicamba, (PC Code 029801).	--	--	--	--
027401	Dichlobenil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Mar-17
027401	Dichlobenil	Acute Dietary, Females 13-49	0.45	45.00	100	135.00	Increased incidences of total resorptions/dam, post-implantation loss and fetal external, visceral and skeletal anomalies.	Rabbit	Developmental Toxicity	41257302	22-Mar-17
027401	Dichlobenil	Chronic Dietary, General Population	0.01	1.00	100	6.00	Increased liver weights and increased serum cholesterol, triglycerides, phospholipids and alkaline phosphatase in both sexes; increased gamma-GT and periportal hypertrophy of hepatocytes in males.	Dog	Chronic	43969701	22-Mar-17
031301	Dichloran	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-May-06
031301	Dichloran	Acute Dietary, Females 13-49	0.50	50.00	100	100.00	Increased incidences of supernumerary rudimentary ribs and also decreased fetal weights.	Rat	Developmental Toxicity	46447501	11-May-06
031301	Dichloran	Chronic Dietary, General Population	0.025	2.50	100	25.00	Clinical chemistry(increased alkaline phosphatase), increased liver weights, hepatocyte hypertrophy, vacuolar alterations of the brain and spinal cord, prostate atrophy, degeneration of the seminiferous tubules, and hypospermia in the epididymides.	Dog	Chronic	00029056; 00082718; 00026810; 45610801	11-May-06
900497	Dichlormid	Acute Dietary, General Population	0.10	10.00	100	40.00	Decreased body weight gain and food consumption (most significant on days 7-10 of dosing).	Rat	Developmental Toxicity	44606408	13-Jan-11
900497	Dichlormid	Chronic Dietary, General Population	0.065	6.5	100	32.80	Based on liver clinical pathology/histopathology and increased liver weight.	Rat	Chronic/ Carcinogenicity	44529402; 44751801	13-Jan-11
084001	Dichlorvos	Acute Dietary, General Population	0.008	BMDL10 = 0.8	100	BMD = 1.6	RBC and Bain ChEI in acute oral cholinesterase studies.	Rat	Special/Other	45805703	22-Jun-06
084001	Dichlorvos	Chronic Dietary, General Population	0.0005	0.05	100	0.10	Plasma, RBC ChEI in both sexes.	Dog	Chronic	41593101	22-Jun-06
110902	Diclofop-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Aug-00
110902	Diclofop-methyl	Acute Dietary, Females 13-49	0.10	10.00	100	32.00	Decreases in fetal body weight and crown-rump length, distended ureters, and skeletal abnormalities.	Rat	Developmental Toxicity	92036042; 42143402	01-Aug-00
110902	Diclofop-methyl	Chronic Dietary, General Population	0.0023	0.23	100	2.30	Increases in absolute and relative liver and kidney weights, alterations in clinical chemistry parameters, hypertrophy.	Rat	Chronic/ Carcinogenicity	43927302	01-Aug-00

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
129122	Diclosulam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-Feb-00
129122	Diclosulam	Chronic Dietary, General Population	0.05	5.00	100	100.00	Decreased urinary specific gravity, protein. Increased urine volume, renal tubule changes , pelvic epithelium hyperplasia.	Rat	Chronic/ Carcinogenicity	44103525	03-Feb-00
010501	Dicofol	Acute Dietary, General Population	0.05	15.00	300	75.00	Decreased body weight and food consumption.	Rat	Acute Neurotoxicity	42633303	08-Sep-99
010501	Dicofol	Chronic Dietary, General Population	0.0004	0.12	300	0.82	Inhibition of adrenal cortical trophic hormone (ACTH) stimulated release of cortisol.	Dog	Chronic	40997101	08-Sep-99
035201	Dicrotophos	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.0007	BMDL10 = 0.07	100	BMD10 = 0.08	Inhibition of brain CHE in rat pups.	Rat	Comparative Cholinesterase Assay	46153205	15-Sep-15
035201	Dicrotophos	Acute Dietary, Adults 50-99 Years	0.0007	BMDL10 = 0.07	100	BMD10 = 0.08	Inhibition of brain CHE in rat pups.	Rat	Comparative Cholinesterase Assay	46153205	15-Sep-15
035201	Dicrotophos	Steady State Dietary, Adults 50-99 Years	0.0003	BMDL10 = 0.03	100	BMD10 = 0.04	Inhibition of brain ChE in adult rat.	Rat	Comparative Cholinesterase Assay	43980201; 44527802	15-Sep-15
035201	Dicrotophos	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0003	BMDL10 = 0.03	100	BMD10 = 0.04	Inhibition of brain ChE in adult rat.	Rat	Comparative Cholinesterase Assay	43980201; 44527802	15-Sep-15
114002	Diethanolamine Mefluidide	See Other	--	--	--	--	Same Dose/Endpoints as: Mefluidide, (PC Code 114001).	--	--	--	--
112102	Diethofencarb	Acute Dietary, General Population	--	--	--	--	An endpoint attributable to a single dose was not identified.	--	--	--	27-Aug-15
112102	Diethofencarb	Chronic Dietary, General Population	0.50	50.0	100	250.00	Based on decreased body weights and emesis.	Dog	Chronic	49267452	27-Aug-15
119901	Difenacoum	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Jul-07
119901	Difenacoum	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Jul-07
128847	Difenoconazole	Acute Dietary, General Population	0.25	25.00	100	200.00	Based on reduced fore-limb grip strength in males on Day 1 and increased motor activity on Day 1.	Rat	Acute Neurotoxicity	46950327	11-Oct-17
128847	Difenoconazole	Chronic Dietary, General Population	0.01	0.96	100	24.1	Based on cumulative decreases in body-weight gains (-6 to -11% of the controls).	Rat	Chronic/ Carcinogenicity	42090019; 42710010	11-Oct-17
106401	Difenzoquat methyl sulfate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	07-Feb-02
106401	Difenzoquat methyl sulfate	Chronic Dietary, General Population	0.083	25.00	300	125.00	Decreases in body weight and body weight gain.	Rat	Chronic/ Carcinogenicity	00036710	07-Feb-02
108201	Diflubenzuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Mar-18
108201	Diflubenzuron	Chronic Dietary, General Population	0.02	2.00	100	10.00	Methemoglobinemia and sulfhemoglobinemia.	Dog	Chronic	00146174	22-Mar-18
005108	Diflufenzopyr	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	07-Mar-17
005108	Diflufenzopyr	Acute Dietary, Females 13-49	1.00	100.00	100	300.00	Based on thoracic rib ossification sites. These effects are presumed to occur from a single dose.	Rabbit	Developmental Toxicity	44170147	07-Mar-17
005108	Diflufenzopyr	Chronic Dietary, General Population	0.26	26.00	100	299.00	Based on the development of erythroid hyperplasia in the bone marrow, reticulocytosis, and increased hemosiderin deposits in the liver, kidneys and spleen.	Dog	Chronic	44307405	07-Mar-17
005107	Diflufenzopyr-sodium	See Other	--	--	--	--	Same Dose/Endpoints as: Diflufenzopyr, (PC Code 005108).	--	--	--	--
129051	Dimethenamid	See Other	--	--	--	--	Same Dose/Endpoints as: Dimethenamid-P, (PC Code 120051).	--	--	--	--
120051	Dimethenamid-P	Acute Dietary, General Population	2.00	200.00	100	600.00	Based on lacrimation, salivation, irregular and accelerated respiration, slight tremors, reduced exploration, unsteady gait, significantly reduced rearing.	Rat	Acute Neurotoxicity	49184304	03-Sep-15
120051	Dimethenamid-P	Acute Dietary, Females 13-49	0.75	75.00	100	150.00	Increased resorptions, implantation loss and angulated hyoid alae.	Rabbit	Developmental Toxicity	41706809	03-Sep-15
120051	Dimethenamid-P	Chronic Dietary, General Population	0.05	5.00	100	36.00	Decreased body weight and body weight gain from week 1-10 and week 10-104 in both sexes, and at termination, increased microscopic hepatic lesions in both sexes.	Rat	Chronic/ Carcinogenicity	41706808; 42030102	03-Sep-15

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
118901	Dimethipin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Aug-04
118901	Dimethipin	Chronic Dietary, General Population	0.0218	2.18	100	50.3	Toxicity in kidneys, lungs, duodenum, and testes of males and depressed body weight gain and toxicity in liver, kidney, glandular stomach, heart, and aortic artery of females.	Rat	Chronic/ Carcinogenicity	43897601	26-Aug-04
035001	Dimethoate	Acute Dietary, General Population	0.013	1.30	100	1.50	Brain ChEI in PND11 females (BMD10).	Rat	Comparative Cholinesterase Assay	45529702	31-Jan-06
035001	Dimethoate	Chronic Dietary, General Population	0.0022	0.22	100	0.25	Brain ChEI in females (BMD10).	Rat	Chronic/ Carcinogenicity	00164177	31-Jan-06
268800	Dimethomorph	Acute Dietary, General Population	0.25	Not Est.	1000	250.00	Based on reduced motor activity and impairment of gait and rearing in both sexes.	Rat	Acute Neurotoxicity	48980106	28-Jul-15
268800	Dimethomorph	Chronic Dietary, General Population	0.11	11.00	100	46.30	Based on decreased body weight and increased in liver lesions in female rats.	Rat	Carcinogenicity	42233912; 42233916	28-Jul-15
001001	Dimethoxane	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	21-Dec-00
001001	Dimethoxane	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	21-Dec-00
000177	Dimethyl sulfoxide	Acute Dietary, General Population	--	--	--	--	No appropriate study was identified to estimate risk via this route of exposure.	--	--	--	27-Apr-99
000177	Dimethyl sulfoxide	Chronic Dietary, General Population	--	--	--	--	No appropriate study was identified to estimate risk via this route of exposure.	--	--	--	27-Apr-99
036001	Dinocap	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Feb-01
036001	Dinocap	Acute Dietary, Females 13-49	0.04	4.00	100	10.00	Increased incidences of cleft palate and open eyelids.	Mouse	Developmental Toxicity	41313001	08-Feb-01
036001	Dinocap	Chronic Dietary, General Population	0.0037	0.375	100	1.50	Ophthalmoscopic changes and retinal atrophy.	Dog	Chronic	00247957	08-Feb-01
044312	Dinotefuran	Acute Dietary, General Population	1.25	125.00	100	300.00	Clinical signs (prone position, panting, tremor, erythema) seen after the first dose on GD6.	Rabbit	Developmental Toxicity	45654208	12-Jun-19
044312	Dinotefuran	Chronic Dietary, General Population	1.00	99.70	100	991.00	Based on decreased body weight gain and nephrotoxicity.	Rat	Chronic/ Carcinogenicity	45640001	12-Jun-19
067701	Diphacinone	Acute Dietary, General Population	0.002	0.1300	100	0.2000	Increased activated thromboplastin time in females at 24 hours following dosage.	Rat	Acute	43260702	09-Apr-97
038501	Diphenylamine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-Aug-18
038501	Diphenylamine	Chronic Dietary, General Population	0.10	10.00	100	50.00	Alterations in clinical chemistry parameters (increased BUN, cholesterol, total bilirubin) and increased absolute and relative kidney, liver and spleen weights.	Dog	Chronic	43000601	30-Aug-18
032201	Diquat dibromide	Acute Dietary, General Population	0.75	75.00	100	150.00	Decreased body weight gain, piloerection, diarrhea, staining, urinary incontinence, upward curvature of spine, hunched posture, tip toe gait, subdued behavior, pinched sides.	Rat	Acute Neurotoxicity	42666801	17-Sep-15
032201	Diquat dibromide	Chronic Dietary, General Population	0.005	0.50	100	2.50	Unilateral cataracts in females and decreased adrenal and epididymides weights in males.	Dog	Chronic	41730301	17-Sep-15
013802	Disodium methanearsonate	Acute Dietary, General Population	0.10	10.00	100	40.00	Diarrhea, vomiting, and salivation beginning at week 1.	Dog	Chronic	40546101; 41266401	21-Jun-06
013802	Disodium methanearsonate	Chronic Dietary, General Population	0.03	3.2	100	27.2	Decreased body weight, body weight gain and food consumption, histopathology of gastrointestinal tract and thyroid in females.	Rat	Chronic/ Carcinogenicity	41669001	21-Jun-06
032501	Disulfoton	Acute Dietary, General Population	0.0025	0.25	100	0.75	Neurotoxic signs and plasma, erythrocyte ChEI in females.	Rat	Acute Neurotoxicity	42755801	10-Apr-01
032501	Disulfoton	Chronic Dietary, General Population	0.00013	0.013	100	0.094	Plasma, erythrocyte, brain, corneal and retinal ChEI.	Dog	Chronic	44248002	10-Apr-01
099201	Dithianon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-Sep-09
099201	Dithianon	Acute Dietary, Females 13-49	0.02	20.00	1000	50.00	Post-implantation loss due to early resorptions.	Rat	Developmental Toxicity	44092611	14-Sep-09
099201	Dithianon	Chronic Dietary, General Population	0.006	6.00	1000	30.00	Decreased body weight gains and increased relative to body kidney weights; Grossly observed kidney lesions in males and females and non-neoplastic lesions of the kidney in males and females.	Rat	Chronic/ Carcinogenicity	44092616; 44092617; 44092618	14-Sep-09

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
128994	Dithiopyr	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Jun-18
128994	Dithiopyr	Chronic Dietary, General Population	0.00036	0.36	1000	3.63	Based on changes in clinical chemistry parameters (GOT, GPT, TP, Alb, TChol), and histopathology in the liver (spongiosis hepatis in males and bile ductal proliferation in females) and kidney (chronic nephropathy in males).	Rat	Chronic/ Carcinogenicity	41990601	26-Jun-18
035505	Diuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-May-07
035505	Diuron	Chronic Dietary, General Population	0.001	Not Est.	1000	1.00	Hemolytic anemia, compensatory hematopoiesis.	Rat	Chronic/ Carcinogenicity	40886501; 43871901; 43804501; 44302003	15-May-07
044301	Dodine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jan-08
044301	Dodine	Chronic Dietary, General Population	0.02	2.00	100	10.00	Body weight loss in females.	Dog	Chronic	44246101	24-Jan-08
069005	d-Phenothrin (Sumithrin)	Acute Dietary, General Population	--	--	--	--	An endpoint attributable to a single dose was not identified for this population subgroup.	--	--	--	14-Sep-16
069005	d-Phenothrin (Sumithrin)	Acute Dietary, Females 13-49	0.3	30.00	100	100.00	Based on spina bifida.	Rabbit	Developmental Toxicity	41230003	14-Sep-16
069005	d-Phenothrin (Sumithrin)	Chronic Dietary, General Population	0.07	7.10	100	26.80	Based on hepatocellular enlargement in the liver and focal degeneration in the adrenal cortex in both sexes.	Dog	Chronic	40276401	14-Sep-16
069005	d-Phenothrin (Sumithrin)	Chronic Dietary, Infants and Children	0.07	7.10	100	26.80	Based on hepatocellular enlargement in the liver and focal degeneration in the adrenal cortex in both sexes.	Dog	Chronic	40276401	14-Sep-16
069089	Ecolyst	Acute Dietary, General Population	0.50	50.00	100	200.00	Slight ataxia.	Rat	Acute Neurotoxicity	44380001	30-Nov-99
069089	Ecolyst	Chronic Dietary, General Population	0.14	14.10	100	114.00	Decreased body weight and body weight gains.	Rat	Reproduction	44595004	30-Nov-99
122806	Emamectin Benzoate	Acute Dietary, General Population	0.0025	0.25	100	0.5	Based skeletal muscle atrophy and white matter multifocal degeneration in the brains of both sexes and white matter multifocal degeneration in the spinal cords of males.	Dog	Subchronic	42743623; 42763624	18-Jul-19
122806	Emamectin Benzoate	Chronic Dietary, General Population	0.0025	0.25	100	0.5	Based on axonal degeneration in the pons, medulla, and peripheral nerves (sciatic, sural, and tibial); whole body tremors; stiffness of the hind legs, spinal cord axonal degeneration, and muscle fiber degeneration.	Dog	Chronic	42743623; 42763624	18-Jul-19
079401	Endosulfan	Acute Dietary, General Population	0.015	1.50	100	3.00	Increased incidences of convulsions seen within 8 hours after dosing.	Rat	Acute Neurotoxicity	44403101	30-Jun-10
079401	Endosulfan	Chronic Dietary, General Population	0.006	0.60	100	2.90	Decreases in body weight gain, enlarged kidneys, increased incidences of marked progressive glomerulonephrosis and blood vessel aneurysms.	Rat	Chronic/ Carcinogenicity	41099502	30-Jun-10
038901	Endothall	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Dec-15
038901	Endothall	Chronic Dietary, General Population	0.007	Not Est.	300	2.00	Proliferative lesions of the gastric epithelium in both sexes.	Rat	Reproduction	43152101; 43629301	09-Dec-15
038905	Endothall Amine Salt	See Other	--	--	--	--	Same Dose/Endpoints as: Endothall, (PC Code 038901).	--	--	--	--
038904	Endothall dipotassium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Endothall, (PC Code 038901).	--	--	--	--
123909	Epoxiconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-Dec-05
123909	Epoxiconazole	Acute Dietary, Females 13-49	0.05	5.00	100	15.00	Increase in the number of litters containing fetuses with accessory 14th ribs.	Rat	Developmental Toxicity	44335020	12-Dec-05
123909	Epoxiconazole	Chronic Dietary, General Population	0.02	2.00	100	7.00	Ovarian cysts. Adrenal accessory nodules; cellular hypertrophy in females.	Rat	Chronic/ Carcinogenicity	44335017	12-Dec-05
041401	EPTC (Ethyl dipropylthiocarbamate)	Acute Dietary, General Population	0.20	Not Est.	1000	200.00	Based on neuronal cell necrosis in the brain in males.	Rat	Acute Neurotoxicity	43039701; 43297401	28-Jun-17
041401	EPTC (Ethyl dipropylthiocarbamate)	Chronic Dietary, General Population	0.05	5.00	100	25.00	Based on decreased body weight and increased incidences of myocardial and neuromuscular lesions.	Rat	Chronic/ Carcinogenicity	00145004; 00145311; 00161597	28-Jun-17
004007	Esbiothrin	See Other	--	--	--	--	Same Dose/Endpoints as: Bioallethrin (D-trans Allethrin), (PC Code 004003).	--	--	--	--

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
109303	Esfenvalerate	Acute Dietary, General Population	0.011	BMDL1SD = 1.1	100	BMD1SD = 1.8	Based on reductions in locomotor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	31-Mar-17
109303	Esfenvalerate	Acute Dietary, Infants and Children	0.011	BMDL1SD = 1.1	100	BMD1SD = 1.8	Based on reductions in locomotor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	31-Mar-17
090205	Ethaboxam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Mar-19
090205	Ethaboxam	Chronic Dietary, General Population	0.055	5.50	100	16.40	Based on effects observed in testes, epididymides, prostate, and seminal vesicles.	Rat	Chronic/ Carcinogenicity	46387811	15-Mar-19
113101	Ethalfluralin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	02-Nov-07
113101	Ethalfluralin	Acute Dietary, Females 13-49	0.75	75.00	100	150.00	Increased number of resorptions and increased sternal and cranial variations.	Rabbit	Developmental Toxicity	00250596	02-Nov-07
113101	Ethalfluralin	Chronic Dietary, General Population	0.04	4.00	100	20.00	Altered red blood cell morphology and urinary bilirubin.	Dog	Chronic	00153371; 92062014	02-Nov-07
129091	Ethametsulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	13-Dec-00
129091	Ethametsulfuron	Chronic Dietary, General Population	4.49	449.00	100	1817.00	Decreases in body weight and body weight gain in P and F1a males and females.	Rat	Reproduction	42022154	13-Dec-00
099801	Ethephon	Acute Dietary, General Population	0.06	Not Est.	30	1.80	Cholinergic signs in both sexes following daily bolus dosing (capsule); Clinical signs seen between Days 1 and 4.	Human	Subchronic	00036510	01-Oct-15
099801	Ethephon	Chronic Dietary, General Population	0.06	Not Est.	30	1.80	Cholinergic signs in both sexes following daily bolus dosing (capsule); Clinical signs seen between Days 1 and 4.	Human	Subchronic	00036510	01-Oct-15
058401	Ethion	Acute Dietary, General Population	0.0017	0.05	30	0.52	Plasma ChEI.	Dog	Chronic	41188401	17-Feb-99
058401	Ethion	Chronic Dietary, General Population	0.0005	0.05	100	0.52	Plasma ChEI.	Dog	Chronic	41188401	17-Feb-99
005550	Ethiprole	Acute Dietary, General Population	0.35	35.00	100	250.00	Based on decreased locomotor activity and functional observational battery (FOB) findings in both sexes on the day of treatment.	Rat	Acute Neurotoxicity	47622822	29-Apr-19
005550	Ethiprole	Chronic Dietary, General Population	0.03	0.85	30	3.21	Based on observed effects in the thyroid and/ or liver (histopathologic changes, increased organ weights, and/or altered thyroid hormone or bilirubin levels).	Rat	Chronic/ Carcinogenicity	47622813	29-Apr-19
110601	Ethofumesate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	04-Oct-17
110601	Ethofumesate	Acute Dietary, Females 13-49	0.30	30.00	100	300.00	Based on increased resorptions, post-implantation loss and incomplete ossification of the vertebral arches.	Rabbit	Developmental Toxicity	00156606; 40263701; 41652502	04-Oct-17
110601	Ethofumesate	Chronic Dietary, General Population	1.30	127.00	100	469.00	Based on decreased body weight/weight gain in females.	Rat	Chronic/ Carcinogenicity	44093603; 44093604	04-Oct-17
110601	Ethofumesate	Chronic Dietary, Females 13-49	0.30	30.00	100	300.00	Based on increased resorptions, post-implantation loss and incomplete ossification of the vertebral arches.	Rabbit	Developmental Toxicity	00156606; 40263701; 41652501	04-Oct-17
041101	Ethoprop	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.0042	BMDL10 = 0.4187	100	BMDL10 = 0.5498	Inhibition of RBC AChE in PND11 pups.	Rat	Special/Other	46278701	15-Sep-15
041101	Ethoprop	Acute Dietary, Adults 50-99 Years	0.0042	BMDL10 = 0.4187	100	BMDL10 = 0.5498	Inhibition of RBC AChE in PND11 pups.	Rat	Special/Other	46278701	15-Sep-15
041101	Ethoprop	Steady State Dietary, Adults 50-99 Years	0.00065	BMDL10 = 0.0653	100	BMDL10 = 0.1056	Inhibition of RBC AChE in PND11 pups.	Rat	Special/Other	46636401	15-Sep-15
041101	Ethoprop	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.00065	BMDL10 = 0.0653	100	BMDL10 = 0.1056	Inhibition of RBC AChE in PND11 pups.	Rat	Special/Other	46636401	15-Sep-15
055501	Ethoxyquin	Acute Dietary, General Population	0.03	3.0	100	Not Est.	Selected as a conservative endpoint for risk assessment. Non-guideline study indicates no effect on newborn mortality or abortions in pregnant rabbits.	Rabbit	Developmental Toxicity	Isenstein 1970	29-Jul-04
055501	Ethoxyquin	Chronic Dietary, General Population	0.02	2.00	100	4.00	Elevated liver enzymes and microscopic findings in the liver (cytoplasmic vacuolation and minimal hepatocellular necrosis).	Dog	Subchronic	44148901	29-Jul-04

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
044003	Ethyl acetate	See Other	--	--	--	--	Same Dose/Endpoints as: Methyl esters of fatty acids, (PC Code 079034).	--	--	--	--
057501	Ethyl Parathion	Acute Dietary, General Population	0.0003	0.025	100	2.50	Plasma and RBC ChEI.	Rat	Acute Neurotoxicity	43117901	10-Sep-99
057501	Ethyl Parathion	Chronic Dietary, General Population	0.00003	Not Est.	300	0.01	Plasma and RBC ChEI in both sexes.	Dog	Chronic	24664243	10-Sep-99
600502	Ethylene Chlorohydrin	Acute Dietary, General Population	0.10	100.00	1000	150.00	Poor survival and lack of fertility effects.	Mouse	Developmental Toxicity	Courtney et al. 1982	18-May-05
600502	Ethylene Chlorohydrin	Chronic Dietary, General Population	0.045	45.00	1000	67.50	Decreased mean body weight in males, poor survival, dark liver and lungs; Subacute myocarditis, colloid depletion in thyroid, fatty liver and congestive pulmonary changes.	Rat	Subchronic	Courtney et al. 1982	18-May-05
042203	Ethylene Glycol	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-May-05
042203	Ethylene Glycol	Chronic Dietary, General Population	0.40	40.00	100	200.00	Increased oxalate excretion in urine of both sexes and mild fatty changes in liver of females.	Rat	Chronic/ Carcinogenicity	DePass 1986b	18-May-05
042301	Ethylene Oxide	Acute Dietary, General Population	--	--	--	--	Potential exposure from dietary is minimal for this compound which exists as a gas.	--	--	--	15-May-07
042301	Ethylene Oxide	Chronic Dietary, General Population	--	--	--	--	Potential exposure from dietary is minimal for this compound which exists as a gas.	--	--	--	15-May-07
600016	Ethylene thiourea (ETU)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified for this population subgroup.	--	--	--	03-Jul-13
600016	Ethylene thiourea (ETU)	Acute Dietary, Females 13-49	0.005	5.00	1000	10.00	Based on hydrocephaly and other malformations.	Rat	Developmental Toxicity	45937601; Khera 1973	03-Jul-13
600016	Ethylene thiourea (ETU)	Chronic Dietary, General Population	0.0018	0.18	100	1.99	Decreases in body weight gain, increased thyroid weight, and thyroid lesions.	Dog	Chronic	42338101	03-Jul-13
600016	Ethylene thiourea (ETU)	Chronic Dietary, Females 13-49	0.00018	0.18	1000	1.99	Decreases in body weight gain, increased thyroid weight, and thyroid lesions.	Dog	Chronic	42338101	03-Jul-13
128965	Etofenprox	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jun-17
128965	Etofenprox	Chronic Dietary, General Population	0.0255	25.50	1000	186.00	Based on increased thyroid and liver weights, thyroid hormonal changes, and histopathological changes in liver and thyroid.	Rat	Chronic/ Carcinogenicity	40449707	28-Jun-17
107091	Etoxazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jul-19
107091	Etoxazole	Chronic Dietary, General Population	0.046	4.62	100	23.50	Increased alkaline phosphatase activity, increased liver weights, increased centrilobular hepatocellular swelling.	Dog	Chronic	45089942	28-Jul-19
113202	Famoxadone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Mar-19
113202	Famoxadone	Chronic Dietary, General Population	0.0014	Not Est.	1000	1.40	Cataracts in females. Cataracts were also seen in the 1 year study.	Dog	Subchronic	44302419	29-Mar-19
079059	Fatty alcohols (54.5% C10, 45.1% C8, 0.4% C6)	See Other	--	--	--	--	Same Dose/Endpoints as: 1-Decanol (PC Code 079038).	--	--	--	--
046679	Fenamidone	Acute Dietary, General Population	1.25	125.00	100	500.00	Urination, staining of the anogenital region, mucous in the feces, and unsteady gait in females.	Rat	Acute Neurotoxicity	45386108	27-Jun-19
046679	Fenamidone	Chronic Dietary, General Population	0.0283	2.83	100	7.07	Increase in the severity of diffuse thyroid C-cell hyperplasia in both sexes.	Rat	Chronic/ Carcinogenicity	45400010; 45400011; 45386105	27-Jun-19
100601	Fenamiphos	Acute Dietary, General Population	0.0011	BMDL10 = 0.11	100	BMD10 = 0.27	Cholinesterase inhibition in red blood cells (male-female grouped; adult).	Rat	Acute Neurotoxicity	44041501	23-Jun-10
100601	Fenamiphos	Chronic Dietary, General Population	0.0003	BMDL10 = 0.030	100	BMD10 = 0.072	Cholinesterase inhibition in red blood cells (male-female grouped; adult).	Dog	Chronic	42183601; 42684801	23-Jun-10
206600	Fenarimol	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Feb-10
206600	Fenarimol	Chronic Dietary, General Population	0.006	0.60	100	1.20	Decreased litter size.	Rat	Reproduction	45502301; 45502302	26-Feb-10

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
044501	Fenazaquin	Acute Dietary, General Population	0.15	15.00	100	30.00	Based on clinical signs (general ataxia/hypoactivity) observed in 1 animal on Day 2 and 3 animals on Day 3 of dosing.	Rat	Immunotoxicity	48459503	12-Mar-19
044501	Fenazaquin	Chronic Dietary, General Population	0.05	5.00	100	12.00	Based on decreased body weight and food consumption / efficiency.	Dog	Chronic	45029901; 45029906	12-Mar-19
129011	Fenbuconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	31-Jan-13
129011	Fenbuconazole	Acute Dietary, Females 13-49	0.30	30.00	100	75.00	Increased post-implantation loss and decreased live fetuses.	Rat	Developmental Toxicity	41031214; 41073505	31-Jan-13
129011	Fenbuconazole	Chronic Dietary, General Population	0.03	3.00	100	30.62	Decreased body weight gain, increased thyroid weights, and lesions of the liver and thyroid glands.	Rat	Chronic/ Carcinogenicity	41635301; 41635302	31-Jan-13
104601	Fenbutatin-oxide	Acute Dietary, General Population	0.2	20.00	100	100.00	Based on decreased motor activity and body temperature.	Rat	Acute Neurotoxicity	46644201	27-Jun-19
104601	Fenbutatin-oxide	Chronic Dietary, General Population	0.05	5.13	100	16.60	Based on decreased pup body weights in F2 litters.	Rat	Reproduction	41540601	27-Jun-19
090209	Fenhexamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	04-Jan-18
090209	Fenhexamid	Chronic Dietary, General Population	0.17	17.00	100	124.00	Decreases in RBC, hemoglobin, hematocrit, Increases in Heinz bodies, absolute/relative adrenal weights and adrenal lesions.	Dog	Chronic	44346804	04-Jan-18
105901	Fenitrothion	Acute Dietary, General Population	0.0025	0.25	1000	0.50	RBC ChEI measured after two weeks of dosing.	Rat	Carcinogenicity/ Oncogenicity	40420501	10-Nov-10
105901	Fenitrothion	Chronic Dietary, General Population	0.00125	0.125	100	0.25	Plasma ChEI and lymph node histopathology.	Dog	Chronic	40058501	10-Nov-10
128701	Fenoxaprop-ethyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-Jul-07
128701	Fenoxaprop-ethyl	Acute Dietary, Females 13-49	0.32	32.00	100	100.00	Increased skeletal malformations including eye and heart defects, absent innominate artery, diaphragmatic hernia and umbilical hernia.	Rat	Developmental Toxicity	00152156	18-Jul-07
128701	Fenoxaprop-ethyl	Chronic Dietary, General Population	0.0025	0.25	100	1.5	Decreased blood total lipids and cholesterol in F1 generation; Endpoint is based on two reproduction studies.	Rat	Reproduction	00263030; 00159920; 00161983; 00258966; 00258967; 00258968; 00258970	18-Jul-07
125301	Fenoxycarb	Acute Dietary, General Population	0.20	200.00	100	300.00	Increased incidence of spinal bifida and hypoplastic tail.	Rabbit	Developmental Toxicity	00153125	22-Dec-97
125301	Fenoxycarb	Chronic Dietary, General Population	--	--	--	--	Inadequate database. Can not establish a Reference Dose.	--	--	--	22-Dec-97
082566	Fenpicoxamid (XDE-777)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Aug-17
082566	Fenpicoxamid (XDE-777)	Steady State Dietary, General Population	0.40	40	100	156	Based on treatment-related adverse liver effects in males (↑ liver wt, hypertrophy, hepatocyte necrosis and fatty change) and females (↑ liver wt, hypertrophy and fatty change) and gall bladder calculi.	Mouse	Carcinogenicity	49731126	24-Aug-17
127901	Fenpropathrin	Acute Dietary, General Population	0.05	BMDL = 5.0	100	BMD = 6.4	Based on decreased locomotor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	18-May-16
127901	Fenpropathrin	Acute Dietary, Infants and Children	0.05	BMDL = 5.0	100	BMD = 6.4	Based on decreased locomotor activity.	Rat	Special/Other	Wolansky et al. 2006; 47885701	18-May-16
127901	Fenpropathrin	Chronic Dietary, General Population	--	--	--	--	Acute endpoints are protective of longer-term exposure.	--	--	--	18-May-16
012305	Fenpropidin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Jul-13
012305	Fenpropidin	Acute Dietary, Females 13-49	0.10	10.00	100	20.00	Based on increased fetal (litter) incidence of malformations (persistent truncus arteriosus, severely malaligned sternebrae) and decreased male fetal body weight in the absence of maternal effects.	Rabbit	Developmental Toxicity	48681802; 48681801	08-Jul-13
012305	Fenpropidin	Acute Dietary, Infants and Children	0.07	7.00	100	27.00	Based on decreased brain weight, decreased radial thickness of the cortex at level 3 and decreased vertical height of the dentate hilus at level 3 in females on PND 72.	Rat	Developmental Neurotoxicity	48836501	08-Jul-13
012305	Fenpropidin	Chronic Dietary, General Population	0.023	2.3	100	11.8	Decreased body weight/body weight gain in females; clinical signs in males and females.	Rat	Chronic/ Carcinogenicity	47317324	08-Jul-13

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
121402	Fenpropimorph	Acute Dietary, Females 13-49	0.15	15.00	100	30.00	Cleft palate.	Rabbit	Developmental Toxicity	44323914	19-Oct-05
121402	Fenpropimorph	Chronic Dietary, General Population	0.032	3.20	100	12.3	Liver enzymes; Co-critical with chronic/onco rat where liver path was seen at 8.8 mg/kg/day.	Dog	Chronic	44323911; 44380106	19-Oct-05
090109	Fenpyrazamine	Acute Dietary, General Population	0.80	80.00	100	400.00	Based on a statistically significant decrease in motor activity.	Rat	Acute Neurotoxicity	48400137	31-Oct-12
090109	Fenpyrazamine	Chronic Dietary, General Population	0.30	30.00	100	50.00	Based on decreased body weight and food consumption.	Rabbit	Developmental Toxicity	48400125	31-Oct-12
129131	Fenpyroximate	Acute Dietary, General Population	0.375	37.5	100	150.00	Based on decreased motor activity (total activity counts and total time spent in movement) in both sexes, and a reduction in auditory startle response in females 24 hours post dose, and mild dehydration in males.	Rat	Acute Neurotoxicity	48441401	23-May-17
129131	Fenpyroximate	Acute Dietary, Females 13-49	0.05	5.00	100	25.00	Based on increase in the fetal incidence of additional thoracic ribs.	Rat	Developmental Toxicity	43429505; 44519906	23-May-17
129131	Fenpyroximate	Chronic Dietary, General Population	0.05	5.0	100	15.00	Based on an increased incidence of bradycardia, diarrhea, and decreases in cholesterol, body-weight gain, and food consumption (M); vomiting, diarrhea, excess salivation and decrease cholesterol in females.	Dog	Chronic	43429503	23-May-17
053301	Fenthion	Acute Dietary, General Population	0.0007	0.07	100	0.20	Lack of Plasma or RBC ChEI at week 1.	Monkey	Chronic	00147245	01-Jan-01
053301	Fenthion	Chronic Dietary, General Population	0.00007	Not Est.	300	0.02	Plasma ChEI. The 0.02 dose is a threshold NOAEL/LOAEL.	Monkey	Chronic	00147245	01-Jan-01
109301	Fenvalerate	Acute Dietary, General Population	0.0018	1.75	1000	1.90	Tremors in females.	Rat	Acute Neurotoxicity	45228301	22-Oct-03
109301	Fenvalerate	Chronic Dietary, General Population	0.0018	1.75	1000	1.90	Tremors in females. Supported by 2 long-term studies conducted with esfenvalerate: 2-generation reproduction study and the mouse oncogenicity study.	Rat	Acute Neurotoxicity	45228301; 43489001; 44260601	22-Oct-03
034801	Ferbam	Acute Dietary, General Population	0.014	1.4	100	3.7	Increases in motor activity on PND 17; Study conducted with Thiram technical (99.6% a.i.).	Rat	Developmental Neurotoxicity	46455201	11-Oct-05
034801	Ferbam	Chronic Dietary, General Population	0.015	1.50	100	7.30	Changes in hematology, clinical chemistry, incidences of bile duct hyperplasia, and reduction in mean body weight gain.	Rat	Chronic/ Carcinogenicity	42157601	11-Oct-05
129121	Fipronil	Acute Dietary, General Population	0.025	2.50	100	7.50	Decreased hind leg splay in males at 7 hrs. Decreases in body weight gain, food consumption and food efficiency.	Rat	Acute Neurotoxicity	44431801	22-Sep-09
129121	Fipronil	Chronic Dietary, General Population	0.0002	0.019	100	0.059	Increased incidence in seizures leading to death. Increased total protein. Increased TSH, decreased T4.	Rat	Chronic/ Carcinogenicity	42918648	22-Sep-09
119011	Flazasulfuron	Acute Dietary, General Population	0.50	50.00	100	1000.00	Based on transient decrease in motor activity 5 hours post-dosing.	Rat	Acute Neurotoxicity	46220934	01-Dec-16
119011	Flazasulfuron	Chronic Dietary, General Population	0.013	1.30	100	13.00	Based on kidney effects (chronic nephropathy in both sexes).	Rat	Chronic/ Carcinogenicity	46220929	01-Dec-16
128016	Flonicamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	06-Dec-19
128016	Flonicamid	Chronic Dietary, General Population	0.04	3.7	100	22.0	Based on increased kidney weights, kidney hyaline deposition, increased blood serum LH (F1 females).	Rat	Reproduction	45854613; 45854612	06-Dec-19
129108	Florasulam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified for this population subgroup.	--	--	--	26-Sep-18
129108	Florasulam	Chronic Dietary, General Population	0.05	5.00	100	50.00	Decreased body weight (17%) and body weight gain(68%) and food consumption in females; adverse liver alterations; slight vacuolation of the zona reticularis and zona fasciculata of adrenal gland (fatty changes) in both sexes.	Dog	Chronic	46808229	26-Sep-18
030093	Florpyrauxifen-benzyl	None	--	--	--	--	No risks of concern have been identified since no adverse effects were observed in the submitted toxicological studies for florpyrauxifen-benzyl regardless of the route of exposure.	--	--	--	01-Jun-17
122805	Fluazifop	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Jun-19
122805	Fluazifop	Acute Dietary, Females 13-49	0.50	50.00	100	200.00	Increased incidence of diaphragmatic hernia.	Rat	Developmental Toxicity	00088857; 00088858	27-Jun-19
122805	Fluazifop	Chronic Dietary, General Population	0.0074	0.74	100	5.80	Decreases in absolute and relative testes and epididymal weights.	Rat	Reproduction	00008859; 92067022; 92067050	27-Jun-19
122809	Fluazifop-P-Butyl	Acute Dietary, General Population	0.50	Not Est.	1000	500.00	Based on clinical signs indicative of toxicity (reduced activity, decreased rearing, hunched posture and/or piloerection), and decreased motor activity (total distance and number of rearings) in both sexes.	Rat	Acute Neurotoxicity	49188708	27-Jun-19
122809	Fluazifop-P-Butyl	Chronic Dietary, General Population	0.0051	0.51	100	4.15	Based on increased mortality associated with increased severity of nephropathy during the first year in males.	Rat	Chronic/ Carcinogenicity	41563703	27-Jun-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
129098	Fluazinam	Acute Dietary, General Population	0.50	50.00	100	1000.00	Based on decreased motor activity and soft stools on day of dosing.	Rat	Acute Neurotoxicity	44807210	30-Nov-16
129098	Fluazinam	Acute Dietary, Females 13-49	0.07	7.00	100	12.00	Based on increased incidence of total litter resorptions and possibly increased incidence of fetal skeletal abnormalities.	Rabbit	Developmental Toxicity	42248616	30-Nov-16
129098	Fluazinam	Chronic Dietary, General Population	0.011	1.1	100	10.7	Based on liver histopathology and increased liver weight (Carcinogenicity - Mouse) and marginal increases in the incidence of nasal dryness in females and the incidence/severity of gastric lymphoid hyperplasia in both sexes (Chronic - Dog).	Mouse	Chronic/ Carcinogenicity	42208405; 44807220; 44807212	30-Nov-16
027602	Flubendiamide	Acute Dietary, General Population	0.995	99.50	100	127.00	Buphthalmia (enlargement of the eyes), ocular opacity, retinal degeneration, hemorrhage, cataract, atrophy of the optic nerve.	Rat	Developmental Neurotoxicity	46817228; 46817216; 46817239	17-Oct-12
027602	Flubendiamide	Chronic Dietary, General Population	0.024	2.40	100	33.90	Liver toxicity, fatty change, hypertrophy, increased liver weight and increased GGT.	Rat	Chronic	46817217; 46817219; 46817218	17-Oct-12
114009	Flucarbazone-sodium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Sep-18
114009	Flucarbazone-sodium	Chronic Dietary, General Population	0.074	7.40	100	33.80	Based on decreased T4 levels.	Dog	Subchronic	44848737; 44848733; 44848729	26-Sep-18
071503	Fludioxonil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Aug-18
071503	Fludioxonil	Chronic Dietary, General Population	0.33	33.1	100	297.8	Based on decreased absolute body weights, increased platelets and fibrin in both sexes, cholesterol in males, and increased alkaline phosphatase release in both sexes. Enlarged livers in two females were also observed along with biliary epithelial cell proliferation in one female.	Dog	Chronic	43080031	29-Aug-18
050410	Fluensulfone	Acute Dietary, General Population	0.16	16.2	100	122.0	Based on increase in pup loss between PND 1 and 4 in the F1 and F2 offspring with the majority of deaths occurring on Day 2.	Rat	Reproduction	48574769	03-Apr-19
050410	Fluensulfone	Chronic Dietary, General Population	0.10	9.6	100	57.7	Decreased body weight in males, and hematology changes, clinical chemistry changes and histopathological effects in the lung and esophagus of both sexes.	Rat	Chronic/ Carcinogenicity	48574765	03-Apr-19
121903	Flufenacet (Thiaflumide)	Acute Dietary, General Population	0.0017	Not Est.	1000	1.70	Decreased body weight and body weight gain. This conservative endpoint selected due to missing morphometric measurements in caudate/putamen, in pups.	Rat	Developmental Neurotoxicity	45232501	10-Jun-15
121903	Flufenacet (Thiaflumide)	Chronic Dietary, General Population	0.0017	Not Est.	1000	1.70	Decreased body weight and body weight gain. NOAEL/LOAEL supported by chronic studies.	Rat	Developmental Neurotoxicity	45232501	10-Jun-15
108203	Flufenoxuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Aug-06
108203	Flufenoxuron	Chronic Dietary, General Population	0.0375	3.750	100	14.330	Decreased pup body weights during lactation.	Rat	Reproduction	44448417; 44448418	15-Aug-06
108853	Flufenpyr-ethyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	31-Jul-03
108853	Flufenpyr-ethyl	Chronic Dietary, General Population	0.40	40.00	100	401.80	Mild anemia in males and hepatocytic necrosis in both sexes.	Mouse	Carcinogenicity	45118920	31-Jul-03
123001	Flumetralin	Acute Dietary, General Population	--	--	--	--	No appropriate endpoint attributable to a single dose identified.	--	--	--	15-Dec-15
123001	Flumetralin	Acute Dietary, Females 13-49	0.5	50.00	100	100.00	Increased incidence of litters with total resorptions, increased post-implantation loss, and increased incidence of external and skeletal alterations (positional anomaly; and fused sternebrae and absent ossification of the caudal vertebral centers).	Rabbit	Developmental Toxicity	43862801	15-Dec-15
123001	Flumetralin	Chronic Dietary, General Population	--	--	--	--	Chronic Dietary exposure is not expected.	--	--	--	15-Dec-15
129016	Flumetsulam (XRD-498)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	19-Sep-13
129016	Flumetsulam (XRD-498)	Chronic Dietary, General Population	1.00	100.00	100	500.00	Renal inflammation and atrophic changes secondary to renal calculi and hepatic effects (inflammation, focal necrosis, biliary stasis).	Dog	Chronic	41952103	19-Sep-13
128724	Flumiclorac pentyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Jun-14
128724	Flumiclorac pentyl	Chronic Dietary, General Population	1.00	100.00	100	1000.00	Decreased weight gain in males, increased clotting time and alkaline phosphatase activity in males and females.	Dog	Chronic	42825817	10-Jun-14

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129034	Flumioxazin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	13-Mar-19
129034	Flumioxazin	Acute Dietary, Females 13-49	0.03	3.00	100	10.00	Increase in cardiovascular abnormalities, particularly ventricular septal defect.	Rat	Developmental Toxicity	42884006; 42684925; 42684930	13-Mar-19
129034	Flumioxazin	Chronic Dietary, General Population	0.02	2.00	100	18.00	Decreases in hemoglobin, MCV, MCH, and MCHC values in females and increased chronic nephropathy in males.	Rat	Chronic/ Carcinogenicity	44295028	13-Mar-19
035503	Fluometuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Feb-05
035503	Fluometuron	Acute Dietary, Females 13-49	0.10	10.00	100	100.00	Delayed urinary system development (shortened renal papillae).	Rat	Developmental Toxicity	00163710	01-Feb-05
035503	Fluometuron	Chronic Dietary, General Population	0.0055	0.55	100	17.17	Decreased body weight gain at 49 weeks; increased splenic hemosiderin pigment deposition.	Rat	Chronic/ Carcinogenicity	00163772	01-Feb-05
027412	Fluopicolide	Acute Dietary, General Population	--	--	--	--	An endpoint attributable to a single dose was not identified.	--	--	--	05-Dec-17
027412	Fluopicolide	Chronic Dietary, General Population	0.20	20.00	100	60.00	Death, abortions/premature deliveries, decreased food consumption and decreased body weight.	Rabbit	Developmental Toxicity	46474122; 46474139	05-Dec-17
080302	Fluopyram	Acute Dietary, General Population	0.50	50.00	100	100.00	Based on decreased motor and locomotor activity in females. The LOAEL in males was 125 mg/kg/day.	Rat	Acute Neurotoxicity	47372507	21-May-19
080302	Fluopyram	Chronic Dietary, General Population	0.012	1.2	100	6.0	Based on follicular cell hypertrophy in the thyroid, and increased liver weight with gross pathological and histopathological findings.	Rat	Chronic/ Carcinogenicity	47372501	21-May-19
028869	Fluoxastrobin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	16-Jul-19
028869	Fluoxastrobin	Chronic Dietary, General Population	0.015	1.50	100	7.70	Body weight reductions, hepatocytomegaly and cytoplasmic changes associated with increased serum liver alkaline phosphatase indicative of cholestasis.	Dog	Chronic	45865701; 45865722	16-Jul-19
122304	Flupyradifurone	Acute Dietary, General Population	0.35	35.0	100	50.0	Increased incidences of piloerection in both sexes and pupil dilation in females on Day 1.	Rat	Acute Neurotoxicity	48844138	24-Aug-16
122304	Flupyradifurone	Chronic Dietary, General Population	0.078	7.8	100	28.0	Minimal to slight focal to multifocal areas of skeletal muscle degeneration in gastrocnemius and/or biceps femoris muscle.	Dog	Chronic	48844121	24-Aug-16
112900	Fluridone	Acute Dietary, General Population	1.25	125.0	100	650.0	Based decreased ambulatory counts and the prevalence of FOB anomalies in males and females.	Rat	Acute Neurotoxicity	48939603	20-Jan-16
112900	Fluridone	Chronic Dietary, General Population	0.15	15.00	100	50.00	Increased alkaline phosphatase activity and increased incidence of hepatocellular hyperplasia.	Mouse	Carcinogenicity	00103252; 00103335	20-Jan-16
128968	Fluroxypyr	See Other	--	--	--	--	Same Dose/Endpoints as: Fluroxypyr acid, (PC Code 128959).	--	--	--	--
128959	Fluroxypyr acid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Sep-18
128959	Fluroxypyr acid	Chronic Dietary, General Population	1.00	100.00	100	500.00	Increase in kidney weights and increase in the severity of chronic progressive glomerulonephropathy.	Rat	Chronic/ Carcinogenicity	44080322	27-Sep-18
125701	Flurprimidol	Acute Dietary, General Population	0.70	70.00	100	285.00	Based on treatment-related findings at the mid-dose including gait abnormality in both sexes, low arousal and impaired righting reflex in males, and hunched body in females, 7-8 hours after dosing.	Rat	Acute Neurotoxicity	48897501	04-Jun-15
125701	Flurprimidol	Acute Dietary, Females 13-49	0.10	10.00	100	45.00	Increased incidence of skeletal abnormalities, microphthalmia, hydroureter and hydronephrosis.	Rat	Developmental Toxicity	00147301	04-Jun-15
125701	Flurprimidol	Chronic Dietary, General Population	0.04	3.6	100	12.1	Based on increased incidences of focal atypia, fatty change, and hepatocellular eosinophilic change in the liver of males.	Rat	Chronic/ Carcinogenicity	40486003	04-Jun-15
128835	Flusilazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-May-06
128835	Flusilazole	Acute Dietary, Females 13-49	0.02	2.00	100	10.00	Distended ureter, small renal papilla, dilated renal pelvis, distended ureter and decreased survival.	Rat	Developmental Toxicity	00154928	30-May-06
128835	Flusilazole	Chronic Dietary, General Population	0.002	0.20	100	0.70	Increased liver weights and hypertrophy of centrilobular hepatocytes.	Dog	Chronic	40042113	30-May-06
108803	Fluthiacet methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Jun-18
108803	Fluthiacet methyl	Chronic Dietary, General Population	0.001	0.10	100	1.00	Based on nonneoplastic liver findings, including centrilobular cell degeneration and necrosis, histiocytic pigmentation, karyomegaly and chronic active inflammation.	Mouse	Carcinogenicity	43830015	25-Jun-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
014018	Flutianil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Nov-17
014018	Flutianil	Chronic Dietary, General Population	--	--	--	--	A chronic dietary risk assessment is not required since no adverse effects were seen in oral toxicity studies at ≥ 1,000 mg/kg/day, including long-term studies in rats, mice, and dogs.	--	--	--	01-Nov-17
128975	Flutolanil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Feb-14
128975	Flutolanil	Chronic Dietary, General Population	0.50	50.00	100	250.00	Increased incidence of clinical signs of toxicity (emesis, salivation, soft stool).	Dog	Chronic	40342922	20-Feb-14
128940	Flutriafol	Acute Dietary, General Population	2.50	250.00	100	750.00	Decreased body weight, body-weight gain, absolute and relative food consumption, and clinical signs of toxicity in both sexes: dehydration, urine-stained abdominal fur, ungroomed coat, ptosis, decreased motor activity, prostration, limp muscle tone, muscle flaccidity, hypothermia, hunched posture, impaired or lost righting reflex, scant feces; in males: red or tan perioral substance, chromodacryorrhea, chromorhinorrhea and labored breathing, and in females: piloerection and bradypnea.	Rat	Acute Neurotoxicity	47090408	01-Sep-15
128940	Flutriafol	Acute Dietary, Females 13-49	0.075	7.50	100	15.00	Decreased number of live fetuses, complete litter resorptions and increased post-implantation loss.	Rabbit	Developmental Toxicity	47090350	01-Sep-15
128940	Flutriafol	Chronic Dietary, General Population	0.05	5.00	100	20.00	Increased liver weights, increased centrilobular hepatocyte lipid in the liver, and increases in alkaline phosphatase, albumin, and triglycerides; increased adrenal cortical vacuolation of the zona fasciculata, and marked hemosiderin pigmentation in the liver and spleen in both sexes; mild anemia (characterized by decreased hemoglobin, hematocrit, and red blood cell count) in the males; and initial body weight losses, decreased cumulative body-weight gains, and increased adrenal weights in the females.	Dog	Chronic	47090353	01-Sep-15
138009	Fluxapyroxad	Acute Dietary, General Population	1.25	125.00	100	500.00	Based on decreased motor activity (both sexes) and decreased rearing (males only).	Rat	Acute Neurotoxicity	47923605	21-Sep-16
138009	Fluxapyroxad	Chronic Dietary, General Population	0.021	2.10	100	11.00	Based on non-neoplastic changes in the liver (foci, masses).	Rat	Chronic/ Carcinogenicity	47923591	21-Sep-16
081601	Folpet	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	26-Apr-04
081601	Folpet	Acute Dietary, Females 13-49	0.10	10.00	100	20.00	Increase in the number of fetuses and litters with hydrocephaly and related malformations.	Rabbit	Developmental Toxicity	00160432	26-Apr-04
081601	Folpet	Chronic Dietary, General Population	0.09	9.00	100	35.00	Hyperkeratosis/acanthosis and ulceration/erosion of the non-glandular stomach.	Rat	Chronic/ Carcinogenicity	43640201; 00151560	26-Apr-04
123803	Fomesafen	See Other	--	--	--	--	Same Dose/Endpoints as: Fomesafen sodium, (PC Code 123802).	--	--	--	--
123802	Fomesafen sodium	Acute Dietary, General Population	1.00	100.00	100	250.00	Based on decreased body weight and motor activity (horizontal and vertical activity and time in central quadrant) in males.	Rat	Acute Neurotoxicity	48973302	08-Mar-18
123802	Fomesafen sodium	Chronic Dietary, General Population	0.01	1.00	100	25.00	Based on hematology (decreased hemoglobin and hematocrit concentrations and erythrocyte count and increased platelet count and prothrombin time).	Dog	Subchronic	00103014	08-Mar-18
128819	Forchlorfenuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	06-Jan-15
128819	Forchlorfenuron	Chronic Dietary, General Population	0.07	7.00	100	93.00	Decreases in body weight, body weight gain, food consumption and kidney toxicity (suppurative inflammation in males and nonsuppurative interstitial nephritis in females).	Rat	Chronic/ Carcinogenicity	44394617	06-Jan-15
122020	Formasulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
122020	Formasulfuron	Chronic Dietary, General Population	--	--	--	--	An appropriate endpoint was not identified. No evidence of toxicity.	--	--	--	15-Sep-15
097301	Formetanate hydrochloride	Acute Dietary, General Population	0.00032	BMDL10 = 0.032	100	BMD10 = 0.041	Female Brain AChE in Comparative ChE study; BMDL10 was calculated from new PND11 data from ORD.	Rat	Comparative Cholinesterase Assay	48298401	26-Sep-18
097301	Formetanate hydrochloride	Chronic Dietary, General Population	--	--	--	--	Not established due to rapid reversibility of ChEI.	--	--	--	26-Sep-18
123301	Fosetyl-Al	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Mar-16
123301	Fosetyl-Al	Chronic Dietary, General Population	2.50	250.00	100	500.00	Testicular degeneration (spermatocytic and/or spermatic giant cells in the lumen of the somniferous tubules).	Dog	Chronic	00098340	24-Mar-16

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
129022	Fosthiazate	Acute Dietary, General Population	0.0087	BMDL10 = 0.87	100	BMD10 = 1.29	Based on RBC ChE inhibition in young adult rats following acute exposure.	Rat	Comparative Cholinesterase Assay	46744902	14-Jan-14
129022	Fosthiazate	Acute Dietary, Infants and Children	0.0065	BMDL10 = 0.65	100	BMD10 = 1.26	Based on RBC ChE inhibition in postnatal day 11 (PND 11) pups.	Rat	Comparative Cholinesterase Assay	46744902	14-Jan-14
129022	Fosthiazate	Chronic Dietary, General Population	0.00096	BMDL10 = 0.096	100	BMD10 = 0.10	Based on RBC ChE inhibition in young adult rats exposed for 11 days.	Rat	Comparative Cholinesterase Assay	46744902	14-Jan-14
043301	Furfural	Acute Dietary, General Population	0.80	80.00	100	200.00	Based on mortality and effects on FOB parameters and motor activity in both males and females.	Rat	Acute Neurotoxicity	48998502	07-Jun-16
043301	Furfural	Chronic Dietary, General Population	0.1	Not Est.	300	30.00	Based on liver pathological observations (centrilobular necrosis and cystic degeneration).	Rat	Chronic	46011016; NTP 1990 study	07-Jun-16
911596	Furilazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Feb-02
911596	Furilazole	Acute Dietary, Females 13-49	0.10	10.00	100	75.00	Increased resorptions.	Rat	Developmental Toxicity	42019731	28-Feb-02
911596	Furilazole	Chronic Dietary, General Population	0.0009	0.26	300	5.05	Increases in absolute/relative liver and kidney weights.	Rat	Chronic/ Carcinogenicity	43700801; 44842701	28-Feb-02
128662	G77 (Urea)	None	--	--	--	--	Due to the lack of mammalian toxicity, HED has determined that a qualitative risk assessment of G77 is sufficient.	--	--	--	18-May-18
128807	Gamma Cyhalothrin	See Other	--	--	--	--	Same Dose/Endpoints as: Lambda Cyhalothrin, (PC Code 128897).	--	--	--	--
083702	Gardona	See Other	--	--	--	--	Same Dose/Endpoints as: Tetrachlorvinphos (TCVP), (PC Code 083701).	--	--	--	--
006324	Gentamicin	See Other	--	--	--	--	Same Dose/Endpoints as: Gentamicin Sulfate, (PC Code 006325).	--	--	--	--
006325	Gentamicin Sulfate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Feb-12
006325	Gentamicin Sulfate	Chronic Dietary, General Population	0.10	10.00	100	60.00	Renal toxicity.	Dog	Subchronic	48479101	01-Feb-12
128850	Glufosinate-ammonium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	04-Apr-17
128850	Glufosinate-ammonium	Acute Dietary, Females 13-49	0.063	6.30	100	20.00	Based on increased fetal death and reduced fetal body weight.	Rabbit	Developmental Toxicity	40345611; 41144703	04-Apr-17
128850	Glufosinate-ammonium	Chronic Dietary, General Population	0.006	6.00	1000	64.00	Based on "WoE" Approach from four studies. Inhibition of brain glutamate synthetase in rats; alterations in the electrocardiogram in dogs; and alterations in brain morphometrics in adult offspring in the rat DNT (Co-critical studies: DNT, 90 day rat and 1 year dog).	Rat	Chronic/ Carcinogenicity	40345607; 41144701; 45179103; 40345608; 46455701	04-Apr-17
417300	Glyphosate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-Dec-17
417300	Glyphosate	Chronic Dietary, General Population	1.00	100.00	100	175.00	Based on dose-dependent clinical signs (diarrhea, few and/or no feces). These findings were also seen in another study in rabbits at a similar dose (MRID 00046362).	Rabbit	Developmental Toxicity	44320616	12-Dec-17
116800	GnRH	None	--	--	--	--	Toxicology data requirements for GnRH vaccines are waived because of the very limited possibility of human exposure. No endpoints were selected and there are no concerns for sensitivity of infants and children because exposure to children is not expected.	--	--	--	02-May-19
117501	Halauxifen-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-Jun-19
117501	Halauxifen-methyl	Chronic Dietary, General Population	0.03	3.0	100	10.0	At the study NOAEL of 10 mg/kg/day, increased hepatic Cyp1a1 expression (MIE for liver toxicity from AhR activation) was observed. The lowest dose of 3.0 mg/kg/day was selected to be protective of potential long-term effects from low-level but sustained increased AhR expression in the liver; Study LOAEL=53 mg/kg/day mild liver enlargement and pathology was observed.	Rat	Subchronic	48557830	03-Jun-19
128721	Halosulfuron methyl (MON 1200)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
128721	Halosulfuron methyl (MON 1200)	Acute Dietary, Females 13-49	0.50	50.00	100	150.00	Increases in the number of resorptions and post implantation losses and decreased mean litter size.	Rabbit	Developmental Toxicity	42139426	15-Sep-15
128721	Halosulfuron methyl (MON 1200)	Chronic Dietary, General Population	0.10	10.00	100	40.00	Decreased body weight gain in females.	Dog	Chronic	42396211	15-Sep-15

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
128925	Hexaconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Apr-99
128925	Hexaconazole	Acute Dietary, Females 13-49	0.025	2.50	100	25.00	Delayed ossification and the presence of extra 14th rib.	Rat	Developmental Toxicity	40944811	20-Apr-99
128925	Hexaconazole	Chronic Dietary, General Population	0.02	2.00	100	10.00	Fatty infiltration in the liver of males and increased liver weights in females.	Dog	Chronic	40944810; 41084704; 42006401	20-Apr-99
107201	Hexazinone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-Jun-15
107201	Hexazinone	Acute Dietary, Females 13-49	1.25	125.00	100	500.00	Based on reduced motor activity in both sexes, decreased body temperature and other FOB findings in females.	Rat	Acute Neurotoxicity	48931901	03-Jun-15
107201	Hexazinone	Chronic Dietary, General Population	0.05	5.00	100	38.00	Decreases in body weight, elevated levels of serum alkaline phosphatase, serum aspartate aminotransferase and liver lesions.	Dog	Chronic	42162301	03-Jun-15
128849	Hexythiazox	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	02-Jul-18
128849	Hexythiazox	Chronic Dietary, General Population	0.025	2.50	100	12.50	Increased absolute and relative adrenal weights and lesions of the adrenal glands.	Dog	Chronic	00146556; 00151359; 00156895	02-Jul-18
118401	Hydramethylnon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-Jun-18
118401	Hydramethylnon	Chronic Dietary, General Population	0.017	1.66	100	3.32	Degeneration of the germinal epithelium and aspermia.	Rat	Reproduction	43741501	12-Jun-18
014002	Hydrogen cyanamide (Cyanamide)	Acute Dietary, General Population	0.005	5.00	1000	15.00	Based on hypoactivity seen on GD6 and GD7 in 8/25 animals after 1 or 2 days of dosing.	Rat	Developmental Toxicity	41288806	12-Mar-14
014002	Hydrogen cyanamide (Cyanamide)	Chronic Dietary, General Population	0.002	2.0	1000	5.00	Based on increased incidences of rough haircoat, desquamation of the skin, tremors, and salivation; decreased body weight gain; decreased T4 in males; increased relative thyroid-parathyroid weights; brown pigment in liver Kupffer cells; thymic atrophy; testicular inflammation; and aspermatogenesis, and hypospermatogenesis.	Dog	Chronic	41288802; 41390501; 41566501	12-Mar-14
045801	Hydrogen cyanide	See Other	--	--	--	--	Same Dose/Endpoints as: Sodium Cyanide, (PC Code 074002).	--	--	--	--
600803	Hydroxyatrazine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Jul-18
600803	Hydroxyatrazine	Chronic Dietary, General Population	0.0676	BMDL10 = 6.76	100	BMD10 = 7.92	Histopathological lesions of the kidneys.	Rat	Chronic/ Carcinogenicity	43532001	10-Jul-18
600803	Hydroxyatrazine	See Other	--	--	--	--	Refer to the Atrazine risk assessment for a detailed description of the Cooper et al. (2010) study, and its use in BMD modeling and PBPK modeling to assess the exposure from other oral, dermal, and inhalation exposure.	--	--	--	10-Jul-18
129107	Hymexazol	Acute Dietary, General Population	1.5	150.0	100	450.0	Based on mortality, abnormal clinical signs (unsteadiness, slumped posture, increased respiration, and salivation) within an hour of dosing, and decreased food consumption and body weight loss within 2 days of initial exposure.	Rabbit	Developmental	42960022	03-Dec-15
129107	Hymexazol	Chronic Dietary, General Population	0.3	31.0	100	159.0	Based on increase in post-implantation loss, decrease in litter size.	Rat	Reproduction	42826309	03-Dec-15
111901	Imazalil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Jul-18
111901	Imazalil	Acute Dietary, Females 13-49	0.10	10.00	100	20.00	Increased resorptions and decreased number of fetuses per litter.	Rabbit	Developmental Toxicity	42593601	05-Jul-18
111901	Imazalil	Chronic Dietary, General Population	0.108	10.80	100	65.80	Based on reductions in body weight and weight gain and macro and microscopic effects in the liver (M/F) and thyroid (M).	Rat	Chronic/ Carcinogenicity	44858001	05-Jul-18
111902	Imazalil sulfate	See Other	--	--	--	--	Same Dose/Endpoints as: Imazalil, (PC Code 111901).	--	--	--	--
128842	Imazamethabenz-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jan-05
128842	Imazamethabenz-methyl	Acute Dietary, Females 13-49	5.00	500.00	100	750.00	Based on increased resorptions and fewer live fetuses per litter.	Rabbit	Developmental Toxicity	00132593	24-Jan-05
128842	Imazamethabenz-methyl	Chronic Dietary, General Population	0.25	25.00	100	100.00	Based on decreased body weight in males.	Dog	Chronic	00139594	24-Jan-05
129171	Imazamox	None	--	--	--	--	A qualitative assessment was determined to be sufficient based on the low toxicity of imazamox; therefore, endpoints were not selected.	--	--	--	26-Sep-18
129041	Imazapic	None	--	--	--	--	No endpoints were selected for imazapic and a quantitative assessment is not needed.	--	--	--	26-Sep-18
128943	Imazapic, ammonium salt	See Other	--	--	--	--	Same Dose/Endpoints as: Imazapic, (PC Code 129041).	--	--	--	--

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
128821	Imazapyr	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Dec-05
128821	Imazapyr	Chronic Dietary, General Population	2.50	250.00	100	Not Est.	No effects were seen at 250 (HDT), Endpoint is based on findings from Imazapic, a structural analog of Imazapyr.	Dog	Chronic	41039502	08-Dec-05
128848	Imazaquin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Sep-18
128848	Imazaquin	Chronic Dietary, General Population	0.25	25.00	100	125.00	Body weight loss, clinical chemistry/hematology changes, slight anemia and the presence of skeletal muscle myopathy.	Dog	Chronic	00138972	24-Sep-18
128840	Imazaquin ammonium	See Other	--	--	--	--	Same Dose/Endpoints as: Imazaquin, (PC Code 128848).	--	--	--	--
129023	Imazaquin Sodium	See Other	--	--	--	--	Same Dose/Endpoints as: Imazaquin, (PC Code 128848).	--	--	--	--
128922	Imazethapyr	None	--	--	--	--	No effects were seen at doses relevant for human health risk assessment and a quantitative assessment is not needed for imazethapyr.	--	--	--	26-Sep-18
128923	Imazethapyr ammonium	See Other	--	--	--	--	Same Dose/Endpoints as: Imazethapyr, (PC Code 128922).	--	--	--	--
118602	Imazosulfuron	Acute Dietary, General Population	4.00	400.00	100	2000.00	Abnormal gait, decreased activity, piloerection and upward curvature of the spine.	Rat	Acute Neurotoxicity	47305319	07-Jul-15
118602	Imazosulfuron	Chronic Dietary, General Population	0.75	75.0	100	150.00	Moderate thyroid hypertrophy.	Dog	Chronic	47305305	07-Jul-15
129099	Imidacloprid	Acute Dietary, General Population	0.08	8.0	100	22.00	Based upon an increased incidence of tremors/trembling.	Dog	Subchronic	42256328	22-Jun-17
129099	Imidacloprid	Chronic Dietary, General Population	0.08	8.0	100	22.00	Based upon an increased incidence of tremors/trembling.	Dog	Subchronic	42256328	22-Jun-17
080818	Indaziflam	Acute Dietary, General Population	0.075	7.5	100	15.00	Based on axonal degenerative microscopic findings in the brain, spinal cord, and sciatic nerve.	Dog	Subchronic	47443289	30-Aug-17
080818	Indaziflam	Chronic Dietary, General Population	0.02	2.00	100	6.00	Based on nerve fiber degenerative lesions in the brain, spiral cord and sciatic nerve.	Dog	Chronic	47443294; 47443295	30-Aug-17
067710	Indoxacarb	Acute Dietary, General Population	0.12	12.00	100	50.00	Decreases in body weight, body weight gain in females (MP062).	Rat	Acute Neurotoxicity	44477127	13-Feb-18
067710	Indoxacarb	Chronic Dietary, General Population	0.02	2.0	100	3.30	Decreases in body weight, body weight gain, food consumption, hematocrit, hemoglobin and red blood cells.	Rat	Chronic/ Carcinogenicity	44477145; 44477129; 44477135; 44477144	13-Feb-18
000011	Iodomethane	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	05-Jan-06
000011	Iodomethane	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	05-Jan-06
122021	Iodosulfuran Methyl-Sodium	Acute Dietary, General Population	1.00	100.00	100	500.00	Based on decreased motor and locomotor activity and clinical signs of toxicity.	Rat	Acute Neurotoxicity	45108820; 45108819	10-Sep-15
122021	Iodosulfuran Methyl-Sodium	Chronic Dietary, General Population	0.073	7.30	100	43.70	Gross and histopathological changes in the hematopoietic system.	Dog	Chronic	45108810	10-Sep-15
125618	Ipoconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Aug-13
125618	Ipoconazole	Acute Dietary, Females 13-49	0.10	10.00	100	30.00	Increased visceral and skeletal variations and malformations.	Rat	Developmental Toxicity	45552710; 45552709	08-Aug-13
125618	Ipoconazole	Chronic Dietary, General Population	0.015	1.50	100	5.00	Skin reddening (both sexes); decreased body weight gain in females.	Dog	Chronic	47048906	08-Aug-13
109801	Iprodione	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Mar-12
109801	Iprodione	Acute Dietary, Females 13-49	0.05	Not Est.	1000	50.00	Decreased anogenital distance in male pups in Dev Rat Study and significant dose-related reductions in serum testosterone levels at 50 m/k/d in the Male Pubertal Assay.	Rat	Developmental Toxicity	44365001; 48279201	27-Mar-12
109801	Iprodione	Chronic Dietary, General Population	0.05	Not Est.	1000	50.00	Histopathological lesions in the male reproductive system and the adrenal glands in both sexes in Chronic/Onco Rat and significant dose-related reductions in serum testosterone levels at 50 m/k/d in the Male Pubertal Assay.	Rat	Chronic/ Carcinogenicity	42637801; 42787001; 48279201	27-Mar-12
098359	Iprovalicarb	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-Jul-05
098359	Iprovalicarb	Chronic Dietary, General Population	0.0262	2.62	100	24.69	Biochemical and morphological effects of the liver.	Dog	Chronic	44865721	18-Jul-05

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
109401	Isofenphos	Acute Dietary, General Population	0.007	Not Est.	300	2.00	Plasma, RBC, brain ChEI with muscle fasciculation.	Rat	Acute Neurotoxicity	44285601	05-May-98
109401	Isofenphos	Chronic Dietary, General Population	0.0008	0.08	100	0.44	Small to very small emaciated pups and increased pup mortality.	Rat	Reproduction	41609902	05-May-98
270000	Isofetamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Apr-17
270000	Isofetamid	Chronic Dietary, General Population	0.77	76.6	100	775	Based on hepatocellular hypertrophy in the liver and follicular cell hypertrophy in the thyroid in both sexes and generations, decreased spleen weights and cytoplasmic eosinophilic inclusion bodies in the liver of F1 males, and decreased pup body weight in both sexes and generations.	Rat	Reproduction	49011940; 49011938	05-Apr-17
047401	Isophorone	Acute Dietary, General Population	5.00	500.00	100	1000.00	Staggering.	Mouse	Range-Finding	00151527	02-Sep-99
047401	Isophorone	Chronic Dietary, General Population	0.15	150.00	1000	Not Est.	No evidence toxicity at highest dose tested.	Dog	Subchronic	00123976	02-Sep-99
129222	Isopyrazam	Acute Dietary, General Population	0.30	30.00	100	100.00	Based on clinical signs (side to side head wobble) in male dogs.	Dog	Subchronic	47746836	19-Oct-16
129222	Isopyrazam	Chronic Dietary, General Population	0.055	5.5	100	27.60	Based on decreased body weight and body weight gain in females; increased incidences of hepatocellular hypertrophy, pigment in centrilobular hepatocytes, eosinophilic foci of altered hepatocytes, vacuolation of centrilobular hepatocytes, bile duct hyperplasia, and bile duct fibrosis in both sexes; and brown pigment in the kidney in females.	Rat	Chronic/ Carcinogenicity	47746851	19-Oct-16
125851	Isoxaben	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	06-Sep-17
125851	Isoxaben	Chronic Dietary, General Population	0.05	5.00	100	50.70	Based on renal toxicity in males.	Rat	Chronic/ Carcinogenicity	00164553	06-Sep-17
823000	Isoxadifen-ethyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Apr-07
823000	Isoxadifen-ethyl	Acute Dietary, Females 13-49	0.15	15.00	100	120.00	Increased incidence bent scapula.	Rat	Developmental Toxicity	44754204; 45145700; 45745101	10-Apr-07
823000	Isoxadifen-ethyl	Chronic Dietary, General Population	0.033	3.30	100	24.00	Increased blood creatinine, decreased urinary specific gravity, increased incidence and severity of straight tubule vacuolation of the kidneys.	Dog	Chronic	44859902; 44754203	10-Apr-07
123000	Isoxaflutole	Acute Dietary, General Population	1.25	125.00	100	500.00	Significant decreases in mean fore limb grip strength on Day 8.	Rat	Acute Neurotoxicity	43904804	09-Sep-11
123000	Isoxaflutole	Acute Dietary, Females 13-49	0.02	Not Est.	300	5.00	Increased incidence of fetuses with 27th pre-sacral vertebrae.	Rabbit	Developmental Toxicity	43904808	09-Sep-11
123000	Isoxaflutole	Chronic Dietary, General Population	0.02	2.00	100	20.00	Hepato-, Thyroid, ocular, and neurotoxicity in males and hepatotoxicity in females.	Rat	Chronic/ Carcinogenicity	43904806	09-Sep-11
230001	Kasugamycin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Sep-17
230001	Kasugamycin	Chronic Dietary, General Population	0.11	11.00	100	116.00	Based on testicular atrophy and softening.	Rat	Chronic/ Carcinogenicity	45910024	27-Sep-17
128101	Kathon 930	Acute Dietary, General Population	0.30	30.00	100	100.00	Decreased food consumption at on days 6-10 of dosing.	Rat	Developmental Toxicity	43471604	08-Dec-99
128101	Kathon 930	Acute Dietary, Females 13-49	0.30	30.00	100	100.00	Increased number of litters with wavy ribs.	Rat	Developmental Toxicity	43471604	08-Dec-99
128101	Kathon 930	Chronic Dietary, General Population	0.02	20.00	100	100.00	Alterations in hematology and clinical chemistry parameters and lesions of the stomach.	Rat	Subchronic	42214903	08-Dec-99
129111	Kresoxim-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Sep-16
129111	Kresoxim-methyl	Chronic Dietary, General Population	0.36	36.00	100	375.00	Decreases in body weight gains and increased gross and microscopic liver and biliary lesions, and (in females) increased incidence of liver masses.	Rat	Chronic/ Carcinogenicity	43864249	28-Sep-16
128888	Lactofen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Aug-12
128888	Lactofen	Acute Dietary, Females 13-49	0.017	Not Est.	300	5.00	Decrease in live young per litter; increased post-implantation loss and early embryonic death per litter.	Rabbit	Developmental Toxicity	--	09-Aug-12
128888	Lactofen	Chronic Dietary, General Population	0.008	0.79	100	3.96	Increased incidence of proteinaceous casts in the kidneys, and decreases in absolute thyroid and adrenal weights.	Dog	Chronic	00071223	09-Aug-12

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
128897	Lambda cyhalothrin	Acute Dietary, General Population	0.0028	BMDL1SD = 0.28	100	BMD1SD = 0.40	Based on decreased motor activity.	Rat	Acute	Moser et al. 2016	30-Jun-17
128897	Lambda cyhalothrin	Acute Dietary, Infants and Children	0.0028	BMDL1SD = 0.28	100	BMD1SD = 0.40	Based on decreased motor activity.	Rat	Acute	Moser et al. 2016	30-Jun-17
009001	Lindane	Acute Dietary, General Population	0.06	6.00	100	20.00	Increased forelimb grip strength and decreased grooming behavior and motor activity.	Rat	Acute Neurotoxicity	44769201	31-Jul-02
009001	Lindane	Chronic Dietary, General Population	0.0047	0.47	100	4.81	Periacinar hepatocyte hypertrophy, increased liver and spleen weights an decreased platelets.	Rat	Chronic/ Carcinogenicity	41094101; 41853701; 42891201	31-Jul-02
035506	Linuron	Acute Dietary, General Population	0.2	20.00	100	100.00	Based on decreases in rearing and in motor activity.	Rat	Acute Neurotoxicity	49096701	11-Jun-19
035506	Linuron	Acute Dietary, Females 13-49	0.12	12.00	100	50.00	Increases in post-implantation loss and fetal resorptions.	Rat	Developmental Toxicity	00018167	11-Jun-19
035506	Linuron	Chronic Dietary, General Population	0.0077	0.77	100	3.5	Increased met- and sulf-hemoglobin levels.	Dog	Chronic	40952601	11-Jun-19
069095	Macleaya Extract	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	12-Jun-14
069095	Macleaya Extract	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	12-Jun-14
057701	Malathion	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.1	POD = 10	100	BMD10 = 13-18	Inhibition of RBC AChE in rat pups (PND 11).	Rat	Comparative Cholinesterase Assay	45566201; 46822201; 47373704	09-Jun-16
057701	Malathion	Acute Dietary, Adults 50-99 Years	0.1	POD = 10	100	BMD10 = 13-18	Inhibition of RBC AChE in rat pups (PND 11).	Rat	Comparative Cholinesterase Assay	45566201; 46822201; 47373704	09-Jun-16
057701	Malathion	Steady State Dietary, Adults 50-99 Years	0.1	POD = 10	100	BMD10 = 13-18	Inhibition of RBC AChE in rat pups (PND 11).	Rat	Comparative Cholinesterase Assay	45566201; 46822201; 47373704	09-Jun-16
057701	Malathion	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.1	POD = 10	1000	BMD10 = 13-18	Inhibition of RBC AChE in rat pups (PND 11).	Rat	Comparative Cholinesterase Assay	45566201; 46822201; 47373704	09-Jun-16
051501	Maleic hydrazide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	02-Sep-05
051501	Maleic hydrazide	Chronic Dietary, General Population	0.25	25.00	100	500.00	Decreased body weight / body weight gain in males. The One-year Dog study is co-critical.	Rat	Chronic/ Carcinogenicity	42570101; 42770401; 42214101; 42248101	02-Sep-05
014504	Mancozeb	Acute Dietary, General Population	5.00	500.00	100	1000.00	Based on decreased motor activity.	Rat	Acute Neurotoxicity	47126201	14-May-13
014504	Mancozeb	Acute Dietary, Females 13-49	1.3	128.00	100	512.00	Based on hydrocephaly and other malformations.	Rat	Developmental Toxicity	00246663	14-May-13
014504	Mancozeb	Acute Dietary, Infants and Children	5.00	500.00	100	1000.00	Based on decreased motor activity.	Rat	Acute Neurotoxicity	47126201	14-May-13
014504	Mancozeb	Chronic Dietary, General Population	0.16	4.83	30	30.9	Thyroid toxicity.	Rat	Chronic/ Carcinogenicity	41903601	14-May-13
014504	Mancozeb	Chronic Dietary, Females 13-49	0.16	4.83	30	30.9	Thyroid toxicity.	Rat	Chronic/ Carcinogenicity	41903601	14-May-13
036603	Mandestrobin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Apr-16
036603	Mandestrobin	Chronic Dietary, General Population	0.92	92.00	100	181.00	Based on incidence of liver centrilobular degeneration, hepatocyte hypertrophy, hepatocyte pigment, and elevated serum ALP and ALT.	Dog	Chronic	49068721	25-Apr-16
036602	Mandipropamid	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Feb-16
036602	Mandipropamid	Chronic Dietary, General Population	0.05	5.00	100	40.00	Increased incidence and severity of microscopic pigment in the liver and increased alkaline phosphatase activity in both sexes and increased alanine aminotransferase activity in males.	Dog	Chronic	46800232	24-Feb-16

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
014505	Maneb	Acute Dietary, General Population	1.00	1000.00	1000	2000.00	Slight impairment of forelimb grip strength. Decreased T4, increased thyroid weights and follicular cell hyperplasia. Decreased T4, increased thyroid weights and follicular cell hyperplasia.	Rat	Acute Neurotoxicity	43947601	08-Jun-05
014505	Maneb	Acute Dietary, Females 13-49	0.02	20.00	1000	100.00	Increased post implantation loss and resorptions and decreased fetal viability.	Rat	Developmental Toxicity	42520001	08-Jun-05
014505	Maneb	Chronic Dietary, General Population	0.05	5.00	100	24.00	Decreased T4, increased thyroid weights and follicular cell hyperplasia.	Rat	Subchronic	40982601	08-Jun-05
119046	MCCP, potassium	See Other	--	--	--	--	Same Dose/Endpoints as: MCPP-p, (PC Code 129046).	--	--	--	--
030501	MCPA	Acute Dietary, General Population	0.142	Not Est.	1000	142	Based on ataxia in female rats (LDT).	Rat	Acute Neurotoxicity	43562702	27-Sep-18
030501	MCPA	Acute Dietary, Females 13-49	0.40	40.00	100	120.00	Based on total litter resorptions (primarily early resorptions) and post-implantation loss.	Rat	Developmental Toxicity	44954101	27-Sep-18
030501	MCPA	Chronic Dietary, General Population	0.044	4.40	100	17.60	Based on nephrotoxicity (increase in retraction and granular surface of the kidney associated with an increase in chronic progressive nephropathy in males.	Rat	Chronic/ Carcinogenicity	40634101	27-Sep-18
030564	MCPA 2-EHE	See Other	--	--	--	--	Same Dose/Endpoints as: MCPA, (PC Code 030501).	--	--	--	--
030516	MCPA DMA	See Other	--	--	--	--	Same Dose/Endpoints as: MCPA, (PC Code 030501).	--	--	--	--
030502	MCPA Na	See Other	--	--	--	--	Same Dose/Endpoints as: MCPA, (PC Code 030501).	--	--	--	--
019201	MCPB Acid	Acute Dietary, General Population	0.142	Not Est.	1000	142.00 (acid equiv.)	Based on ataxia seen in female rats at the lowest dose tested (LDT).	Rat	Acute Neurotoxicity	43562702	10-Jun-19
019201	MCPB Acid	Chronic Dietary, General Population	0.044	4.4	100	17.6	Based on nephrotoxicity.	Rat	Chronic/ Carcinogenicity	40634101	10-Jun-19
019202	MCPB Sodium Salt	See Other	--	--	--	--	Same Dose/Endpoints as: MCPB Acid, (PC Code 019201).	--	--	--	--
031520	MCPP-p, DMA salt	See Other	--	--	--	--	Same Dose/Endpoints as: MCPP-p, (PC Code 129046).	--	--	--	--
031501	Mecoprop (MCPP)	See Other	--	--	--	--	Same Dose/Endpoints as: MCPP-p, (PC Code 129046).	--	--	--	--
031519	Mecoprop-dimethylammonium	See Other	--	--	--	--	Same Dose/Endpoints as: MCPP-p, (PC Code 129046).	--	--	--	--
129046	Mecoprop-p (MCPP-p)	Acute Dietary, General Population	1.75	175.00	100	350.00	FOB changes (closed eyelids, prone body position, hypoactivity) ataxia; decreased rearings in females; increased landing foot splay in males and decreased motor activity.	Rat	Acute Neurotoxicity	43770801	25-Jun-19
129046	Mecoprop-p (MCPP-p)	Chronic Dietary, General Population	0.04	4.00	100	46.00	Increased kidney weight and chronic nephropathy in females.	Mouse	Carcinogenicity/ Oncogenicity	44953601; 44895501	25-Jun-19
31503	Mecoprop-potassium	See Other	--	--	--	--	Same Dose/Endpoints as: MCPP-p, (PC Code 129046).	--	--	--	--
113502	Mefenoxam (Metalaxyl-M)	Acute Dietary, General Population	0.50	50.00	100	250.00	Based on dose-related increases in clinical signs of toxicity (e.g., post-dosing convulsions).	Rat	Developmental Toxicity	00144423, 00144422	05-Jun-18
113502	Mefenoxam (Metalaxyl-M)	Chronic Dietary, General Population	--	--	--	--	No endpoint was identified. No systemic toxicity was observed in the reproduction and fertility effects study or in any of the chronic toxicity studies.	--	--	--	05-Jun-18
811800	Mefenpyr-diethyl (HOE 107892)	Acute Dietary, General Population	--	--	--	--	No hazard was identified in any toxicity study for this duration of exposure.	--	--	--	22-Feb-11
811800	Mefenpyr-diethyl (HOE 107892)	Chronic Dietary, General Population	0.51	51.40	100	260.20	Increased liver weights in both sexes, cholestasis and increased alkaline phosphatase.	Dog	Chronic	44316402	22-Feb-11
122000	Mefentrifluconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-Apr-19
122000	Mefentrifluconazole	Acute Dietary, Females 13-49	0.73	73.00	100	194.00	Based on decreased implantations per dam.	Rat	Reproduction	49762330	11-Apr-19
122000	Mefentrifluconazole	Chronic Dietary, General Population	0.035	3.5	100	9.1	Based on increased liver weights and histopathological findings in the liver (both sexes).	Mouse	Carcinogenicity	49762327	11-Apr-19
114001	Mefluidide	Acute Dietary, General Population	0.58	58.00	100	115.00	Mortality (within 5 days of dosing) and clinical signs (within 2 days of dosing).	Rat	Developmental Toxicity	42026102	02-Apr-07
114001	Mefluidide	Acute Dietary, Females 13-49	0.58	58.00	100	115.00	Increased number of early resorptions and mean postimplantation loss.	Rat	Developmental Toxicity	42026102	02-Apr-07
114001	Mefluidide	Chronic Dietary, General Population	0.015	1.50	100	15.00	Decreased body weight (15%) and body weight gain (50%) in males.	Dog	Chronic	00132995	02-Apr-07
288203	Mepanipyrim	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Jul-04
288203	Mepanipyrim	Chronic Dietary, General Population	0.073	7.30	100	100	Increased incidence of clinical signs of toxicity in males, decreased body weight, body weight gain, and food efficiency in both sexes, and evidence of hepatotoxicity, nephrotoxicity, and fatty acid/lipid metabolism disruption in both sexes.	Rat	Chronic/ Carcinogenicity	44667507; 45825802	22-Jul-04

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
109101	Mepiquat Chloride	Acute Dietary, General Population	0.30	30.00	300	60.00	Based on mortality in both sexes preceded by neurobehavioral effects (i.e. lateral position and tremors) several hours post-dosing (i.e. bolus) during PNDs 11-21.	Rat	Developmental Neurotoxicity	46953501	11-Jan-17
109101	Mepiquat Chloride	Chronic Dietary, General Population	0.30	30.00	100	60.00	Based on mortality in both sexes preceded by neurobehavioral effects (i.e. lateral position and tremors) several hours post-dosing (i.e. bolus) during PNDs 11-21.	Rat	Developmental Neurotoxicity	46953501	11-Jan-17
036000	Meptyldinocap (DE-126/Dinocap II)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	17-Mar-09
036000	Meptyldinocap (DE-126/Dinocap II)	Chronic Dietary, General Population	0.005	1.51	300	3.58	Sustained increase in ALT and AST levels in males.	Dog	Subchronic	47289129	17-Mar-09
122009	Mesosulfuron methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Sep-15
122009	Mesosulfuron methyl	Chronic Dietary, General Population	1.55	155.00	100	574.00	Increased mucus secretion in the cardiac and fundic sections of the stomach and chronic superficial gastritis in males.	Dog	Chronic	45386330	09-Sep-15
122990	Mesotrione	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-May-15
122990	Mesotrione	Chronic Dietary, General Population	0.71	71.00	100	307.00	Based on opaque/cloudy eyes observed in second-generation pups.	Mouse	Reproduction	44505034	20-May-15
281250	Metaflumizone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Sep-15
281250	Metaflumizone	Acute Dietary, Females 13-49	0.33	100.00	300	300.00	Absent subclavian artery.	Rabbit	Developmental Toxicity	46264317	29-Sep-15
281250	Metaflumizone	Chronic Dietary, General Population	0.04	12.00	300	30.00	Slight to severe ataxia, recumbency, salivation, decreases in MCHC and total hemoglobin, increased bilirubin, and urobilinogen and increased hemosiderin in the liver.	Dog	Chronic	46264314	29-Sep-15
113501	Metalaxyl	See Other	--	--	--	--	Same Dose/Endpoints as: Mefenoxam (Metalaxyl-M), (PC Code 113502).	--	--	--	--
053001	Metaldehyde	Acute Dietary, General Population	0.30	30.00	100	90.00	Based on clinical signs (ataxia, tremor, salivation, twitching) seen on day 1 of dosing (both sexes).	Dog	Chronic	46378401	31-Aug-16
053001	Metaldehyde	Chronic Dietary, General Population	0.10	10.00	100	30.00	Based on death and atrophy of the testes and prostate.	Dog	Chronic	46378401	31-Aug-16
039002	Metam Potassium	See Other	--	--	--	--	Same Dose/Endpoints as: Metam Sodium, (PC Code 039003).	--	--	--	--
039003	Metam Sodium	Acute Dietary, General Population	--	--	--	--	Not Established. Dietary exposure is not expected.	--	--	--	28-Sep-18
039003	Metam Sodium	Chronic Dietary, General Population	--	--	--	--	Not Established. Dietary exposure is not expected.	--	--	--	28-Sep-18
125619	Metconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Dec-14
125619	Metconazole	Acute Dietary, Females 13-49	0.12	12.00	100	30.00	Increases in skeletal anomalies, including extra lumbar ribs, cervical ribs, and extra pre-sacral vertebra.	Rat	Developmental Toxicity	44721522	15-Dec-14
125619	Metconazole	Chronic Dietary, General Population	0.04	4.30	100	13.10	Increased liver weights and associated hepatocellular lipid vacuolation and centrilobular hypertrophy.	Rat	Chronic/ Carcinogenicity	44721609	15-Dec-14
101201	Methamidophos	Acute Dietary, General Population	0.003	0.30	100	0.70	Plasma, erythrocyte, brain ChEI. Dose/endpoint chosen by combining two acute neurotoxicity studies.	Rat	Acute Neurotoxicity	43025001; 43345801	18-Nov-99
101201	Methamidophos	Chronic Dietary, General Population	0.0003	0.03	100	0.06	Brain ChEI.	Rat	Subchronic	41867201	18-Nov-99
100301	Methidathion	Acute Dietary, General Population	0.002	0.20	100	0.60	Plasma, RBC, brain ChEI.	Rat	Subchronic Neurotoxicity	43582501	08-Nov-99
100301	Methidathion	Chronic Dietary, General Population	0.0015	0.15	100	1.33	RBC ChEI and liver pathology.	Dog	Chronic	Not Reported	08-Nov-99
100501	Methiocarb	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Sep-17
100501	Methiocarb	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Sep-17
090088	Methiozolin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Jun-19
090088	Methiozolin	Chronic Dietary, General Population	0.43	43.20	100	171.00	Based on decreased body weight during gestation and lactation in the F1 generation females.	Rat	Reproduction	49780311; 49780312	20-Jun-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
090301	Methomyl	Acute Dietary, General Population	0.003	BMDL10 = 0.03	10	BMD10 = 0.04	Based on increases in peak RBC AChE inhibition.	Human	Acute	44721401	12-Dec-18
090301	Methomyl	Acute Dietary, Infants and Children	0.003	BMDL10 = 0.03	10	BMD10 = 0.04	Based on increases in peak RBC AChE inhibition.	Human	Acute	44721401	12-Dec-18
090301	Methomyl	Chronic Dietary, General Population	--	--	--	--	Since the peak AChEI occurs within approximately 30 minutes and recovers within hours, repeated daily exposure does not result in an increased inhibition of AChE as the enzyme recovery is complete before the next acute exposure. Therefore, only acute exposure. Therefore, only acute exposure durations are of concern for methomyl.	--	--	--	12-Dec-18
121027	Methoxyfenozide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	30-Aug-18
121027	Methoxyfenozide	Chronic Dietary, General Population	0.10	10.20	100	411.00	Alterations in hematology parameters, increased liver weight, hepatocellular hypertrophy, follicular cell hypertrophy and altered colloid and increased adrenal weights.	Rat	Chronic/ Carcinogenicity	44617731; 44617728	30-Aug-18
053201	Methyl bromide	Acute Dietary, General Population	0.90	90.00	100	314.00	Decreased motor activity and body temperature, piloerection, FOB alterations.	Rat	Acute Neurotoxicity	42793601	17-Dec-18
053201	Methyl bromide	Acute Dietary, Females 13-49	0.14	14.00	100	28.00	Agenesis of the gall bladder, fused sternebrae, decreased fetal weight.	Rabbit	Developmental Toxicity	41580401	17-Dec-18
053201	Methyl bromide	Chronic Dietary, General Population	0.022	2.20	100	11.10	Decreases in body weight, body weight gain and food consumption.	Rat	Chronic/ Carcinogenicity	44462501	17-Dec-18
079034	Methyl esters of fatty acids (100% CB - 12)	None	--	--	--	--	Based on the lack of hazard concern and the metabolic profile of methy esters of fatty acids, toxicological endpoints have not been identified for risk assessments. Also, there are no food tolerances; aliphatic esters are considered to be Non Food Use Chemicals.	--	--	--	30-Jun-06
068103	Methyl isothiocyanate (MITC)	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Sep-18
068103	Methyl isothiocyanate (MITC)	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Sep-18
053501	Methyl parathion	Acute Dietary, General Population	0.0011	0.11	100	0.53	Clinical signs of neurotoxicity, plasma, RBC and brain ChEI, neuropathology.	Rat	Neurotoxicity	41853801; 44204501	24-Mar-09
053501	Methyl parathion	Chronic Dietary, General Population	0.0002	0.02	100	0.21	RBC ChEI, neuropathology, systemic toxicity.	Rat	Chronic/ Carcinogenicity	25250125; 25025250	24-Mar-09
014601	Metiram	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-Jun-07
014601	Metiram	Acute Dietary, Females 13-49	0.01	10.00	1000	40.0	Increases in abortions.	Rabbit	Developmental Toxicity	40411401	14-Jun-07
014601	Metiram	Chronic Dietary, General Population	0.0004	0.40	1000	6.70	Reduced forelimb grip strength.	Rat	Subchronic	40290601; 42539101	14-Jun-07
109709	Metofluthrin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	18-Sep-12
109709	Metofluthrin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	18-Sep-12
108801	Metolachlor	See Other	--	--	--	--	Same Dose/Endpoints as: Metolachlor, (PC Code 108801).	--	--	--	--
000325	Metrafenone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Nov-18
000325	Metrafenone	Chronic Dietary, General Population	0.249	24.90	100	260.00	Based on hepatoxicity and nephrotoxicity in both sexes.	Rat	Chronic/ Carcinogenicity	46415732	27-Nov-18
101101	Metribuzin	Acute Dietary, General Population	0.005	5.0	100	20.0	Based on abnormal clinical observations and FOB observations, and significantly decreased motor activity in both sexes one hour after dosing.	Rat	Acute Neurotoxicity	44804101	27-Jun-17
101101	Metribuzin	Chronic Dietary, General Population	0.0013	1.3	1000	13.8	Decreased body weight gain in females, increased thyroid weights in males and increased liver weights in males and females.	Rat	Chronic/ Carcinogenicity	42672501	27-Jun-17
122010	Metsulfuron methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Sep-15
122010	Metsulfuron methyl	Chronic Dietary, General Population	0.25	25.00	100	250.00	Decreases in body weight and body weight gain.	Rat	Chronic/ Carcinogenicity	00154477	10-Sep-15
015801	Mevinphos	Acute Dietary, General Population	0.001	0.10	100	2.00	Increased incidence of clinical signs, changes in the majority of FOB parameters, and decreased plasma and brain cholinesterase.	Rat	Acute Neurotoxicity	42985401	17-May-00
015801	Mevinphos	Acute Dietary, Infants and Children	0.001	0.10	100	2.00	Increased incidence of clinical signs, changes in the majority of FOB parameters, and decreased plasma and brain cholinesterase.	Rat	Acute Neurotoxicity	42985401	17-May-00
015801	Mevinphos	Chronic Dietary, General Population	0.00025	0.025	100	0.35	Clinical signs of toxicity and decreased plasma and brain cholinesterase activity.	Rat	Chronic/ Carcinogenicity	43088601	17-May-00

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
057001	MGK 264	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Sep-16
057001	MGK 264	Acute Dietary, Females 13-49	1.00	100.00	100	300.00	Increases in abortions and resorptions.	Rabbit	Developmental Toxicity	40352301; 45254201	22-Sep-16
057001	MGK 264	Chronic Dietary, General Population	0.061	Not Est.	1000	61.00	Decreased body weights in pups during lactation.	Rat	Reproduction	42155701	22-Sep-16
047201	MGK Repellent 326	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	07-Apr-03
047201	MGK Repellent 326	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	07-Apr-03
090105	Milbemectin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	06-Sep-02
090105	Milbemectin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	06-Sep-02
063502	Mineral oil - (includes paraffin oil from 063503)	See Other	--	--	--	--	Same Dose/Endpoints as: Aliphatic petroleum solvent, (PC Code 063503).	--	--	--	--
063500	Mineral oil, refined	See Other	--	--	--	--	Same Dose/Endpoints as: Aliphatic petroleum solvent, (PC Code 063503).	--	--	--	--
079052	MNDA	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	22-Sep-98
079052	MNDA	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	22-Sep-98
041402	Molinate	Acute Dietary, General Population	0.006	Not Est.	300	1.80	Reduction in auditory startle amplitude.	Rat	Developmental Neurotoxicity	44079201	09-Jan-01
041402	Molinate	Chronic Dietary, General Population	0.001	Not Est.	300	0.30	Degeneration/demyelination in the sciatic nerve and atrophy/reserve cell hyperplasia in the muscle at the lowest dose tested.	Rat	Chronic/ Carcinogenicity	41815101	09-Jan-01
016331	Momfluorothrin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	09-Dec-14
016331	Momfluorothrin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	09-Dec-14
600046	MON 4660	Acute Dietary, General Population	0.10	10.00	100	30.00	Decreased body weight gain.	Rabbit	Developmental Toxicity	40123001	19-Apr-01
600046	MON 4660	Acute Dietary, Females 13-49	0.10	10.00	100	30.00	Decreased body weight gain.	Rabbit	Developmental Toxicity	40123001	19-Apr-01
600046	MON 4660	Chronic Dietary, General Population	0.007	2.21	300	22.09	Histopathological changes of the liver and stomach.	Rat	Chronic/ Carcinogenicity	44272501	19-Apr-01
013803	Monosodium acid methanearsonate (MMA)	Acute Dietary, General Population	0.10	10.00	100	40.00	Diarrhea, vomiting, and salivation beginning at week 1.	Dog	Chronic	40546101; 41266401	21-Jun-06
013803	Monosodium acid methanearsonate (MMA)	Chronic Dietary, General Population	0.03	3.2	100	27.2	Decreased body weight, body weight gain and food consumption, histopathology of gastrointestinal tract and thyroid in females.	Rat	Chronic/ Carcinogenicity	41669001	21-Jun-06
013806	MSMA-calcium salt	Acute Dietary, General Population	0.10	10.00	100	40.00	Diarrhea, vomiting, and salivation beginning at week 1.	Dog	Chronic	40546101; 41266401	21-Jun-06
013806	MSMA-calcium salt	Chronic Dietary, General Population	0.03	3.2	100	27.2	Decreased body weight, body weight gain and food consumption, histopathology of gastrointestinal tract and thyroid in females.	Rat	Chronic/ Carcinogenicity	41669001	21-Jun-06
128857	Myclobutanil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Nov-07
128857	Myclobutanil	Acute Dietary, Females 13-49	0.60	60.00	100	200.00	Increased resorptions, decreased litter size, and viability index.	Rabbit	Developmental Toxicity	00164971	01-Nov-07
128857	Myclobutanil	Chronic Dietary, General Population	0.025	2.49	100	9.94	Testicular atrophy, decreased testicular weight.	Rat	Chronic/ Carcinogenicity	00149582; 00165247	01-Nov-07

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
056002	NAA	See Other	--	--	--	--	Same Dose/Endpoints as: NAA ethyl ester, (PC Code 056008).	--	--	--	--
056004	NAA ammonium salt	See Other	--	--	--	--	Same Dose/Endpoints as: NAA ethyl ester, (PC Code 056008).	--	--	--	--
056008	NAA ethyl ester	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-Dec-18
056008	NAA ethyl ester	Chronic Dietary, General Population	0.25	25.00	100	75.00	Stomach lesions in 75% of males; slight sinusoidal histiocytosis in liver of 50% of males.	Dog	Chronic	43744201; 42983801	03-Dec-18
056003	NAA potassium salt	See Other	--	--	--	--	Same Dose/Endpoints as: NAA ethyl ester, (PC Code 056008).	--	--	--	--
056007	NAA sodium salt	See Other	--	--	--	--	Same Dose/Endpoints as: NAA ethyl ester, (PC Code 056008).	--	--	--	--
056001	NAD	See Other	--	--	--	--	Same Dose/Endpoints as: NAA ethyl ester, (PC Code 056008).	--	--	--	--
034401	Naled	Acute Dietary, General Population	0.01	1.00	100	10.00	Plasma ChEI, Brain ChEI, Clinical signs.	Rat	Subchronic	00088871; 00246496	29-May-01
034401	Naled	Chronic Dietary, General Population	0.002	0.20	100	2.00	Brain ChEI.	Rat	Chronic/ Carcinogenicity	00141784; 40418901; 00128701; 00088871	29-May-01
055801	Naphthalene	Acute Dietary, General Population	0.40	Not Est.	1000	400.00	Base on hunched posture (females), reduced motor activity and head shaking (both sexes).	Rat	Acute Neurotoxicity	44282801	26-Dec-18
055801	Naphthalene	Chronic Dietary, General Population	0.10	100.00	1000	200.00	Based on significant body weight/body weight gain decrement and renal effects (minimal cortical focal lymphocytic infiltrate; focal tubular regeneration).	Rat	Subchronic	NTP 1980a	26-Dec-18
103001	Napropamide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	07-Jul-05
103001	Napropamide	Chronic Dietary, General Population	0.12	12.00	100	48.00	Decreased weight gain in females and increased incidence of liver lesions in males.	Rat	Chronic/ Carcinogenicity	42189102; 43068801	07-Jul-05
077401	Niclosamide	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	01-Sep-98
077401	Niclosamide	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	01-Sep-98
129008	Nicosulfuron	Acute Dietary, General Population	--	--	--	--	An endpoint attributable to a single dose was not identified.	--	--	--	14-Sep-15
129008	Nicosulfuron	Chronic Dietary, General Population	1.25	125.00	100	500.00	Decreased body weight gain in males; Increased in relative liver and kidney weights in males.	Dog	Chronic	41360102	14-Sep-15
069203	Nitrapyrin	Acute Dietary, General Population	0.16	16.0	100	80.0	Based on decreased total motor activity on Day 1 in females.	Rat	Acute Neurotoxicity	49938101	16-Jul-19
069203	Nitrapyrin	Chronic Dietary, General Population	0.03	3.00	100	15.00	Changes in liver enzymes, liver weights and liver lesions.	Dog	Chronic	41345401	16-Jul-19
105801	Norflurazon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Sep-17
105801	Norflurazon	Chronic Dietary, General Population	0.0015	1.5	1000	4.8	Based on increased incidence of thyroid colloid/vacuoles and epithelial desquamation both sexes; increase liver weight, ALP and cholesterol males.	Dog	Chronic	00111618	28-Sep-17
124002	Novaluron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	18-Jun-15
124002	Novaluron	Chronic Dietary, General Population	0.011	1.1	100	30.6	Erythrocyte damage and turnover resulting in compensatory regenerative anemia.	Rat	Chronic/ Carcinogenicity	45651506	18-Jun-15
118204	Noviflumuron	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	04-Apr-03
118204	Noviflumuron	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	04-Apr-03
108209	Orthosulfamuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
108209	Orthosulfamuron	Chronic Dietary, General Population	0.05	5.00	100	500.00	Decreased body weight gains, hepatotoxicity (weight changes, hypertrophy, cystic degeneration) and nephrotoxicity (weight changes and nephropathy) in both sexes.	Rat	Chronic/ Carcinogenicity	46578913	15-Sep-15

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
104201	Oryzalin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	13-Sep-17
104201	Oryzalin	Acute Dietary, Females 13-49	0.25	25.00	100	55.00	Decreased live fetuses, increased resorptions, and increased post implantation loss.	Rabbit	Developmental Toxicity	00026785; 00052557; 00073552	13-Sep-17
104201	Oryzalin	Chronic Dietary, General Population	0.19	19.4	100	58.7	Based on systemic/parental increased kidney weights, and parental and offspring hyaline droplets, and nephrosis.	Rat	Reproduction	42401501	13-Sep-17
109001	Oxadiazon	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Jul-01
109001	Oxadiazon	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Jul-01
103801	Oxamyl	Acute Dietary, General Population	0.0069	BMDL10 = 0.069	10	BMD10 = 0.083	Based on RBC AChEI.	Human	Acute	44912301	20-Jun-17
103801	Oxamyl	Acute Dietary, Infants and Children	0.0069	BMDL10 = 0.069	10	BMD10 = 0.083	Based on RBC AChEI.	Human	Acute	44912301	20-Jun-17
103801	Oxamyl	Chronic Dietary, General Population	--	--	--	--	Since the peak AChEI occurs quickly and recovers within hours, repeated daily exposure does not result in increased inhibition of AChE as the enzyme recovery is complete before the next acute exposure. Therefore, only acute exposure durations are of concern for oxamyl.	--	--	--	20-Jun-17
128111	Oxathiapiprolin	None	--	--	--	--	Due to the limited toxicity observed in the oxathiapiprolin toxicological database, HED has determined that a quantitative risk assessment is not needed. As a result, toxicological endpoints and points of departure were not selected.	--	--	--	25-Jun-15
058702	Oxydemeton-methyl	Acute Dietary, General Population	0.008	Not Est.	300	2.50	Plasma, RBC, Brain ChEI.	Rat	Acute Neurotoxicity	43929901	02-Sep-99
058702	Oxydemeton-methyl	Chronic Dietary, General Population	0.0001	0.0125	100	0.125	Plasma, RBC, Brain ChEI.	Dog	Chronic	00151805; 41980801; 43454201	02-Sep-99
111601	Oxyfluorfen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	19-Jun-19
111601	Oxyfluorfen	Chronic Dietary, General Population	0.04	4.00	100	42.00	Based on liver toxicity (microscopic liver lesions; increased absolute and relative liver weights; and elevated liver enzymes).	Mouse	Carcinogenicity	00037939	19-Jun-19
006304	Oxytetracycline	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Nov-18
006304	Oxytetracycline	Chronic Dietary, General Population	1.00	100.00	100	Not Est.	Minor effects in the rat chronic feeding study at 1250 mkd and slight effects in the dog at 125 mkd.	Rat	Chronic	00132394; 00132395; 00159856	20-Nov-18
006321	Oxytetracycline calcium	See Other	--	--	--	--	Same Dose/Endpoints as: Oxytetracycline, (PC Code 006304).	--	--	--	--
006308	Oxytetracycline hydrochloride	See Other	--	--	--	--	Same Dose/Endpoints as: Oxytetracycline, (PC Code 006304).	--	--	--	--
125601	Paclobutrazol	Acute Dietary, General Population	0.30	30.00	100	150.00	Based on transient alterations in motor activity decreased rearing counts and decreased subsession distances in females 3-4 hours after dosing.	Rat	Acute Neurotoxicity	49211902	21-Jan-15
125601	Paclobutrazol	Acute Dietary, Females 13-49	0.10	10.00	100	40.00	Based on significant and dose-related increases in fetuses and litters with unilateral partial ossification of the 7th vertebra and with significant and dose-related bilateral increases in fetuses and litters with extra rib (14).	Rat	Developmental Toxicity	00143158	21-Jan-15
125601	Paclobutrazol	Chronic Dietary, General Population	0.11	10.8	100	54.2	Based on an increase in hypertrophy/steatosis of the liver (both sexes), and increased absolute and relative liver weights (both sexes). Possible borderline increase in uterine stromal polyps in high and mid-dose females.	Rat	Chronic/ Carcinogenicity	40734301; 47078901	21-Jan-15
061501	para-Dichlorobenzene	Acute Dietary, General Population	2.112	1.2 mg/L	100	3.6 mg/L	Based on decreased forelimb and hindlimb grip and motor activity in males.	Rat	Acute Neurotoxicity	43350601	27-Sep-18
061501	para-Dichlorobenzene	Chronic Dietary, General Population	0.10	10.00	100	50.00	Based on increased liver weight, clinical chemistry findings, and histopathological changes in the liver.	Dog	Chronic	43988802	27-Sep-18
061601	Paraquat dichloride	Acute Dietary, General Population	0.05 mg paraquat ion/kg	5.00 mg paraquat ion/kg	100	10.00 mg paraquat ion/kg	Based on clinical signs of toxicity and mortality.	Rat	Developmental Toxicity	00113714	26-Jun-19
061601	Paraquat dichloride	Chronic Dietary, General Population	0.005 paraquat ion/kg	0.50 mg paraquat ion/kg	100	0.93 mg paraquat ion/kg	Based on increased severity of chronic pneumonitis and gross lung lesions in both sexes, and focal pulmonary granulomas in males.	Dog	Chronic	00072416; 00132474	26-Jun-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
056502	PCNB, Pentachloronitrobenzene (Quintozene)	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-Feb-05
056502	PCNB, Pentachloronitrobenzene (Quintozene)	Chronic Dietary, General Population	0.01	1.00	100	150.00	Hepatocellular hypertrophy, hyperplasia and thyroid hypertrophy and hyperplasia.	Rat	Chronic/ Carcinogenicity	41987301	03-Feb-05
041403	Pebulate	Acute Dietary, General Population	0.50	50.00	100	150.00	Decreased motor activity.	Rat	Acute Neurotoxicity	43217401	23-Nov-99
041403	Pebulate	Chronic Dietary, General Population	0.007	0.7400	100	7.1200	Decreased body weights and increased incidence of cataracts.	Rat	Chronic/ Carcinogenicity	41213001	23-Nov-99
108501	Pendimethalin	Acute Dietary, General Population	1.00	100.00	100	300.00	Based on reduced motor activity for males and females on Day 0.	Rat	Acute Neurotoxicity	48695601	23-Jan-18
108501	Pendimethalin	Chronic Dietary, General Population	0.3	10.00	30	31.00	Thyroid hormonal, organ weights and histopathological changes.	Rat	Subchronic	42054601; 43135001; 43135003	23-Jan-18
100249	Penflufen	Acute Dietary, General Population	0.50	50.00	100	100.00	Based on decreased motor and locomotor activity (39-81% on day of treatment) in females.	Rat	Acute Neurotoxicity	48023829	28-Jun-16
100249	Penflufen	Chronic Dietary, General Population	0.38	38.00	100	357.00	Based on decreased terminal body weight and body weight gain (females), increased prothrombin time (males), increased alkaline phosphatase activity, decreased cholesterol, increased GGT levels, decreased albumin and albumin/globulin ratio, decreased calcium and phosphorus, increased liver weights, increased incidence of focal hepatocellular brown pigment and hepatocellular hypertrophy, and an increased incidence of thyroid follicular cell hypertrophy in both sexes, and in increased incidence of zona glomerulosa vacuolation of the adrenal gland in females.	Dog	Chronic	48023813	28-Jun-16
119031	Penoxsulam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	05-Sep-18
119031	Penoxsulam	Chronic Dietary, General Population	0.147	14.70	100	46.20	Multifocal hyperplasia of the pelvic epithelium of the kidney.	Dog	Chronic	45830914	05-Sep-18
063001	Pentachlorophenol	Acute Dietary, Females 13-49	0.30	30.00	100	80.00	Increased resorptions, skeletal malformation/variations and reduced fetal weight.	Rat	Developmental Toxicity	43091702	08-Dec-97
063001	Pentachlorophenol	Chronic Dietary, General Population	0.005	Not Est.	300	1.50	Increased liver weights, alkaline phosphatase levels and hepatic lesions as well as lymphocytic mucosal inflammation of the stomach.	Dog	Chronic	43982701	08-Dec-97
090112	Penthiopyrad	Acute Dietary, General Population	1.25	125.00	100	500.00	Based on transient functional alterations (e.g, hunched posture, unsteady gait, reduced body temperature, and increased landing foot splay) and decreased motor activity at the estimated time-to-peak-effect (4 hours) on the day of administration.	Rat	Acute Neurotoxicity	47614913; 47614914	18-Mar-19
090112	Penthiopyrad	Chronic Dietary, General Population	0.27	27.00	100	83.00	Based on decreased body weight gain, adrenal effects in females and hepatic periportal fatty degeneration in males.	Rat	Chronic/ Carcinogenicity	47614898; 47614899	18-Mar-19
100901	Pentyl valerate	See Other	--	--	--	--	Same Dose/Endpoints as: Methyl esters of fatty acids, (PC Code 079034).	--	--	--	--
109701	Permethrin	Acute Dietary, General Population	0.44	BMDL1SD = 44	100	BMD1SD = 63	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006	30-Jun-17
109701	Permethrin	Acute Dietary, Infants and Children	0.44	BMDL1SD = 44	100	BMD1SD = 63	Based on decreased motor activity.	Rat	Special/Other	Wolansky et al. 2006	30-Jun-17
098701	Phenmedipham	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-Mar-15
098701	Phenmedipham	Chronic Dietary, General Population	0.24	24.00	100	118.00	Hemolytic anemia in both sexes, decreased body weight/body weight gain and food efficiency in females, increased renal pelvic epithelial hyperplasia and mineralization in males.	Rat	Chronic/ Carcinogenicity	46304901	11-Mar-15
111801	PHMB	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	06-Apr-03
111801	PHMB	Acute Dietary, Females 13-49	0.20	20.00	100	40.00	Reduced number of litters and skeletal abnormalities.	Rabbit	Developmental Toxicity	42865901	06-Apr-03
111801	PHMB	Chronic Dietary, General Population	0.20	20.00	100	40.00	Based on increased mortality; reduced food consumption; clinical toxicity.	Rabbit	Developmental Toxicity	42865901	06-Apr-03
057201	Phorate	Acute Dietary, General Population	0.0025	0.25	100	0.50	Brain ChE, Meiosis.	Rat	Acute Neurotoxicity	44719901	31-Aug-99
057201	Phorate	Chronic Dietary, General Population	0.0005	0.05	100	0.25	RBC ChEI, Brain ChEI.	Dog	Chronic	40174527	31-Aug-99

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
097701	Phosalone	Acute Dietary, General Population	0.03	Not Est.	300	10.00	Plasma ChEI.	Rat	Acute Neurotoxicity	44852503	12-Jun-00
097701	Phosalone	Acute Dietary, Females 13-49	0.01	1.00	100	10.00	Post implantation loss.	Rabbit	Developmental Toxicity	41089501	12-Jun-00
097701	Phosalone	Chronic Dietary, General Population	0.002	0.20	100	1.80	Plasma and RBC ChEI, decreased testicular weight; testicular lesions.	Rat	Chronic/ Carcinogenicity	44801002	12-Jun-00
059201	Phosmet	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.014	BMDL10 = 1.4	100	BMD10 = 2.4	PND 11 pup RBC AChEI.	Rat	Comparative Cholinesterase Assay	47087401	08-Sep-16
059201	Phosmet	Acute Dietary, Adults 50-99 Years	0.014	BMDL10 = 1.4	100	BMD10 = 2.4	PND 11 pup RBC AChEI.	Rat	Comparative Cholinesterase Assay	47087401	08-Sep-16
059201	Phosmet	Steady State Dietary, Adults 50-99 Years	0.0016	BMDL10 = 0.16	100	BMD10 = 0.36	Pup RBC AChEI; grouped.	Rat	Comparative Cholinesterase Assay	47695401	08-Sep-16
059201	Phosmet	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0016	BMDL10 = 0.16	100	BMD10 = 0.36	Pup RBC AChEI; grouped.	Rat	Comparative Cholinesterase Assay	47695401	08-Sep-16
129086	Phostebupirim (Tebupirimphos)	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.00158	BMDL10 = 0.158	100	BMD10 = 0.214	Inhibition of RBC AChE in pups on PND 11.	Rat	Comparative Cholinesterase Assay	48172304	25-May-16
129086	Phostebupirim (Tebupirimphos)	Acute Dietary, Adults 50-99 Years	0.00158	BMDL10 = 0.158	100	BMD10 = 0.215	Inhibition of RBC AChE in pups on PND 11.	Rat	Comparative Cholinesterase Assay	48172304	25-May-16
129086	Phostebupirim (Tebupirimphos)	Steady State Dietary, Adults 50-99 Years	0.00041	BMDL10 = 0.041	100	BMD10 = 0.056	Inhibition of RBC AChE in pups on PND 11.	Rat	Comparative Cholinesterase Assay	48172303	25-May-16
129086	Phostebupirim (Tebupirimphos)	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.00041	BMDL10 = 0.041	100	BMD10 = 0.056	Inhibition of RBC AChE in pups on PND 11.	Rat	Comparative Cholinesterase Assay	48172303	25-May-16
070705	Picaridin (KBR 3023)	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Nov-01
070705	Picaridin (KBR 3023)	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	28-Nov-01
005101	Picloram	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-Mar-98
005101	Picloram	Chronic Dietary, General Population	0.20	20.0	100	60.0	Altered size, increases in absolute/relative liver weights and histopathological lesions.	Rat	Chronic/ Carcinogenicity	00132705; 00155940	12-Mar-98
129200	Picoxystrobin	Acute Dietary, General Population	0.20	Not Est.	1000	200.00	Based on low arousal and decreased motor activities in males, decreased rearing in females, in addition to decreased body weight gain and food consumption in both sexes om Day 1.	Rat	Acute Neurotoxicity	48073753	18-Jul-18
129200	Picoxystrobin	Chronic Dietary, General Population	0.046	4.6	100	15.7	Based on decreased body weights, body weight gains, and food consumption in both sexes.	Dog	Chronic	48073741	18-Jul-18
147500	Pinoxaden	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jun-19
147500	Pinoxaden	Acute Dietary, Females 13-49	0.30	30.00	100	100.00	Increased incidence of complete early litter resorption.	Rabbit	Developmental Toxicity	46203303; 46203245; 46203246; 46203301; 46203302; 46203306	24-Jun-19
147500	Pinoxaden	Chronic Dietary, General Population	0.30	30.00	100	100.00	Morbid condition in one rabbit (mortality), clinical signs of toxicity in morbid rabbit, abortion, decreased body weight, body weight gain, and food consumption.	Rabbit	Developmental Toxicity	46203303; 46203245; 46203246; 46203301; 46203302; 46203306	24-Jun-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
067501	Piperonyl butoxide	Acute Dietary, General Population	5.0	500.00	100	1000.00	Based on decreased forelimb grip strength in males, decreased ambulation and fine movement on Day 1 in both sexes, and unusual posture, abnormal gait and increased gate abnormality score severity in females.	Rat	Acute Neurotoxicity	49418801	30-Oct-18
067501	Piperonyl butoxide	Chronic Dietary, General Population	0.155	15.50	100	52.80	Based on decreased in body weight gain and increased in alkaline phosphatase activity, decreased relative liver weight and hepatocellular hypertrophy. Body weights were decreased at study end.	Dog	Chronic	42926001; 42926002	30-Oct-18
106101	Pirimicarb	Acute Dietary, General Population	0.00698	BMDL10 = 6.98	1000	BMDL10 = 11.96	Brain ACHE inhibition from the three studies.	Rat	Acute; Subchronic Neurotoxicity; Special/Other	44485301; 44233103; 00113638	13-Apr-06
106101	Pirimicarb	Chronic Dietary, General Population	0.0018	1.8	1000	4.0	Changes in Myeloid/erythroid ratio.	Dog	Chronic	43641002	13-Apr-06
108102	Pirimiphos-methyl	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.06	BMDL10 = 6.07	100	BMD10 = 7.06	Inhibition of RBC AChE in pups on PND 12.	Rat	Comparative Cholinesterase Assay	49037404	22-Dec-16
108102	Pirimiphos-methyl	Acute Dietary, Adults 50-99 Years	0.06	BMDL10 = 6.07	100	BMD10 = 7.06	Inhibition of RBC AChE in pups.	Rat	Comparative Cholinesterase Assay	49037404	22-Dec-16
108102	Pirimiphos-methyl	Steady State Dietary, Adults 50-99 Years	0.0073	BMDL10 = 0.73	100	BMD10 = 1.01	Inhibition of RBC AChE in pups.	Rat	Comparative Cholinesterase Assay	49037406	22-Dec-16
108102	Pirimiphos-methyl	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0073	BMDL10 = 0.73	100	BMD10 = 1.01	Inhibition of RBC AChE in pups.	Rat	Comparative Cholinesterase Assay	49037406	22-Dec-16
068302	Potassium dichromate	See Other	--	--	--	--	Same Dose/Endpoints as: Chromic acid, (PC Code 021101).	--	--	--	--
114003	Potassium Mefluidide	See Other	--	--	--	--	Same Dose/Endpoints as: Mefluidide, (PC Code 114001).	--	--	--	--
128722	Prallethrin	Acute Dietary, General Population	0.025	2.50	100	5.00	Based on clinical signs of neurotoxicity.	Dog	Chronic	42077002	16-Nov-16
128722	Prallethrin	Acute Dietary, Infants and Children	0.025	2.50	100	5.00	Based on clinical signs of neurotoxicity.	Dog	Chronic	42077002	16-Nov-16
128973	Primisulfuron-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Sep-15
128973	Primisulfuron-methyl	Chronic Dietary, General Population	0.25	25.0	100	125.0	Alterations in hematology parameters, increased relative liver weights, pale livers, vacuolar liver changes and thyroid hyperplasia.	Dog	Chronic	40512008	10-Sep-15
129044	Procymidone	Acute Dietary, Females 13-49	0.035	3.5	100	12.5	Statistically significant reduction in anogenital distance in males.	Rat	Developmental Toxicity	42383401; 42383402; 42482002	13-Jun-05
110201	Prodiamine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jun-18
110201	Prodiamine	Chronic Dietary, General Population	0.14	14.0	100	166.0	Based on reduced pup body weights on lactation day 21.	Rat	Reproduction	40593421; 40593422; 41371901	28-Jun-18
111401	Profenofos	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.0199	BMDL10 = 1.99	100	BMD10 = 3.17	Inhibition of RBC AChE in adult female rats.	Rat	Comparative Cholinesterase Assay	46025406	19-Oct-16
111401	Profenofos	Acute Dietary, Adults 50-99 Years	0.0199	BMDL10 = 1.99	100	BMD10 = 3.17	Inhibition of RBC AChE in adult female rats.	Rat	Comparative Cholinesterase Assay	46025406	19-Oct-16
111401	Profenofos	Steady State Dietary, Adults 50-99 Years	0.0012	BMDL10 = 0.12	100	BMD10 = 0.14(M); 0.13(F)	Inhibition of RBC AChE in adult rats at 13 week interim measurement.	Rat	Chronic/ Carcinogenicity	00081685	19-Oct-16
111401	Profenofos	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.0012	BMDL10 = 0.12	100	BMD10 = 0.14(M); 0.13(F)	Inhibition of RBC AChE in adult rats at 13 week interim measurement.	Rat	Chronic/ Carcinogenicity	00081685	19-Oct-16

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
112600	Prohexadione calcium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Feb-18
112600	Prohexadione calcium	Chronic Dietary, General Population	0.20	20.00	100	200.00	Histopathological changes in the kidney (dilated basophilic tubules) and increased urinary volume and sodium ion concentrations.	Dog	Chronic	44457755; 44457751	22-Feb-18
080804	Prometon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Dec-17
080804	Prometon	Chronic Dietary, General Population	0.05	5.00	100	20.00	Emesis and body weight effects in three studies.	Dog	Chronic	40097901; 42581201; 40488102; 40361501	20-Dec-17
080805	Prometryn	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jun-17
080805	Prometryn	Chronic Dietary, General Population	0.04	3.75	100	37.50	Degenerative changes in the liver and kidneys and atrophy of the bone marrow.	Dog	Chronic	00042794	28-Jun-17
101701	Pronamide (Propyzamide)	Acute Dietary, General Population	0.04	Not Est.	1000	40.0	Based on the increase in landing foot splay in female rats and the decrease in motor activity seen in both genders on Day 1.	Rat	Acute Neurotoxicity	48599202	04-Mar-19
101701	Pronamide (Propyzamide)	Chronic Dietary, General Population	0.013	Not Est.	3000	40.00	Based on a weight of evidence approach using the results from 4 studies in rats including the increase in landing foot splay in female rats and the decrease in motor activity seen in both genders on Day 1.	Rat	Acute Neurotoxicity	48599202; 48599204; 41714001; 41714002; 48688001	04-Mar-19
019101	Propachlor	Acute Dietary, General Population	1.75	175.00	100	350.00	Increased landing foot splay at 7 hours post treatment.	Rat	Acute Neurotoxicity	42584702	06-Jan-98
019101	Propachlor	Chronic Dietary, General Population	0.054	5.40	100	16.10	Stomach lesions in males and liver lesions in both sexes.	Rat	Chronic/ Carcinogenicity	44168301	06-Jan-98
119302	Propamocarb hydrochloride	Acute Dietary, General Population	2.00	200.00	100	2000.00	Decreased body weight gain and decreased motor activity 8 hours post-dosing.	Rat	Acute Neurotoxicity	43013101	21-Nov-16
119302	Propamocarb hydrochloride	Acute Dietary, Females 13-49	1.50	150.00	100	300.00	Increased post implantation loss.	Rabbit	Developmental Toxicity	93193043	21-Nov-16
119302	Propamocarb hydrochloride	Chronic Dietary, General Population	0.12	12.00	100	95.00	Decreases in bodyweight and body weight gain.	Mouse	Carcinogenicity	44693801	21-Nov-16
028201	Propanil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	14-May-03
028201	Propanil	Chronic Dietary, General Population	0.009	Not Est.	1000	9.00	Increased methemoglobin, increased spleen weights, small seminal vesicles and prostates.	Rat	Chronic/ Carcinogenicity	43303201	14-May-03
097601	Propargite	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	13-Sep-01
097601	Propargite	Acute Dietary, Females 13-49	0.08	8.00	100	10.00	Increased incidence of fused sternebrae.	Rabbit	Developmental Toxicity	41336301	13-Sep-01
097601	Propargite	Chronic Dietary, General Population	0.04	4.00	100	20.00	Increased mortality, decreased body weight and body weight gain.	Rat	Chronic/ Carcinogenicity	41750901	13-Sep-01
080808	Propazine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Jul-18
080808	Propazine	Acute Dietary, Females 13-49	0.10	10.00	100	100.00	Based on delayed ossification	Rat	Developmental Toxicity	00150242	10-Jul-18
080808	Propazine	See Other	--	--	--	--	Refer to the Propazine risk assessment for a detailed description of the Cooper et al. (2010) study, and its use in BMD modeling and PBPK modeling to assess the exposure from other oral, dermal, and inhalation exposure.	--	--	--	10-Jul-18
113601	Propetamphos	Acute Dietary, General Population	0.0005	0.05	100	0.10	Plasma, RBC, Brain ChEI.	Mouse	Subchronic	00117996	20-Apr-01
113601	Propetamphos	Chronic Dietary, General Population	0.0005	0.05	100	1.00	Plasma, RBC, Brain ChEI.	Mouse	Chronic/ Carcinogenicity	00063021; 00102928	20-Apr-01

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
122101	Propiconazole	Acute Dietary, General Population	0.30	30.00	100	100.00	Piloerection, diarrhea, tiptoe gait.	Rat	Acute Neurotoxicity	46604601	15-Jul-19
122101	Propiconazole	Acute Dietary, Females 13-49	0.30	30.00	100	90.00	Increases in rudimentary ribs, unossified sternebrae, shortened and absent renal papillae, and cleft palate.	Rat	Developmental Toxicity	40425001	15-Jul-19
122101	Propiconazole	Chronic Dietary, General Population	0.10	10.00	100	50.00	Increased liver weights and liver lesions.	Mouse	Carcinogenicity/ Oncogenicity	00129570; 93194037; 00129918	15-Jul-19
047802	Propoxur	Acute Dietary, General Population	0.00038	BMDL10 = 0.038	100	BMD10 = 0.049	Based on RBC AChel in male and female PND11 pups (combined).	Rat	Comparative Cholinesterase Assay	48784802, 48784803	22-May-15
122019	Propoxycarbazone sodium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Feb-15
122019	Propoxycarbazone sodium	Chronic Dietary, General Population	0.748	74.80	100	297.10	Microscopic lesions of the stomach in males.	Rat	Reproduction	45012529	25-Feb-15
042501	Propylene oxide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	31-Jul-06
042501	Propylene oxide	Acute Dietary, Females 13-49	0.21	209.00	1000	349.00	Increased litter incidence of an accessory 7th cervical rib.	Rat	Developmental Toxicity	41750801	31-Jul-06
042501	Propylene oxide	Chronic Dietary, General Population	0.001	BMDL10 = 1.4	1000	2.6	Increased combined incidences for hyperkeratosis, hyperplasia and papillomas.	Rat	Chronic/ Carcinogenicity	Dunkelberg 1982	31-Jul-06
044502	Proquinazid	Acute Dietary, General Population	0.05	50.00	1000	100.00	Based on decreased motor activity seen in females on Day 1.	Rat	Acute Neurotoxicity	48696359	31-Oct-13
044502	Proquinazid	Chronic Dietary, General Population	0.004	1.2	3000	12.00	Based on increases in non-neoplastic liver lesions and changes in thyroid hormones and thyroid pathology.	Rat	Chronic/ Carcinogenicity	48696348	31-Oct-13
129031	Prosulfuron	Acute Dietary, General Population	0.10	10.00	100	250.00	Based on abnormal gait in females.	Rat	Acute Neurotoxicity	43387703	17-May-17
129031	Prosulfuron	Chronic Dietary, General Population	0.053	5.30	100	54.00	Based on decreased feed efficiency, hematological findings and hepatotoxicity in both sexes.	Dog	Subchronic	42685230	17-May-17
113961	Prothioconazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not available.	--	--	--	09-May-18
113961	Prothioconazole	Acute Dietary, Females 13-49	0.02	2.00	100	10.00	Malformed vertebral body and ribs, arthrogryposis, and multiple malformations.	Rabbit	Developmental Toxicity	46246327	09-May-18
113961	Prothioconazole	Chronic Dietary, General Population	0.01	1.1	100	8.0	Hepatocellular vacuolation and fatty changes (single cell, centrilobular, and periportal).	Rat	Chronic/ Carcinogenicity	46246342	09-May-18
090110	Pydiflumetofen	Acute Dietary, General Population	1.0	100.0	100	300.0	Based on a decrease in locomotor activity (the number of rears and total distance traveled) in females.	Rat	Acute Neurotoxicity	49557950; 49557951	22-Jul-19
090110	Pydiflumetofen	Chronic Dietary, General Population	0.092	9.2	100	45.4	Based on liver weight increase concordant with higher incidence of liver masses, eosinophilic foci of cellular alteration, and centrilobular hypertrophy.	Mouse	Carcinogenicity	49557940	22-Jul-19
101103	Pymetrozine	Acute Dietary, General Population	0.008	Not Est.	1000	8.10	Morphometric changes in the brains of female pups on PND 12 and male pups on PND 63.	Rat	Developmental Neurotoxicity	46170301	18-Dec-18
101103	Pymetrozine	Chronic Dietary, General Population	0.008	Not Est.	1000	8.10	Morphometric changes in the brains of female pups on PND 12 and male pups on PND 63.	Rat	Developmental Neurotoxicity	46170301	18-Dec-18
099100	Pyraclostrobin	Acute Dietary, General Population	--	--	--	--	A toxicity endpoint attributable to a single dose has not identified in the database.	--	--	--	19-Jun-19
099100	Pyraclostrobin	Acute Dietary, Females 13-49	0.05	5.00	100	10.00	Increases in resorptions.	Rabbit	Developmental Toxicity	45118326; 45437001	19-Jun-19
099100	Pyraclostrobin	Chronic Dietary, General Population	0.034	3.40	100	9.20	Decreases in body weight, body weight gain, kidney tubular cast and atrophy, liver necrosis, erosions/ulcer of the glandular stomach and acanthosis/ulcers of the fore stomach.	Rat	Chronic/ Carcinogenicity	45118331	19-Jun-19
030090	Pyraflufen ethyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jun-19
030090	Pyraflufen ethyl	Chronic Dietary, General Population	0.20	20.00	100	98.30	Based on liver toxicity such as: centrilobular hepatocellular swelling (M/F); hepatocellular vacuolization, acidophilic foci, clear cell foci and Kupffer cell brown pigment deposition (M); single cell necrosis (F).	Mouse	Carcinogenicity	45282913	24-Jun-19
000692	Pyrasulfotole	Acute Dietary, General Population	0.038	3.80	100	37.00	Delayed preputial separation (males), decreased cerebrum length (PND 21 females) and decreased cerebellum height (PND 21).	Rat	Developmental Neurotoxicity	46801917	16-Mar-11
000692	Pyrasulfotole	Chronic Dietary, General Population	0.01	1.00	100	10.00	Corneal opacity, neovascularization of the cornea, inflammation of the cornea, regenerative corneal hyperplasia, corneal atrophy and/or retinal atrophy (both sexes) and hepatocellular hypertrophy along with increased serum cholesterol (males).	Rat	Chronic/ Carcinogenicity	46801910	16-Mar-11

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
207100	Pyrazachlor	Acute Dietary, General Population	0.50	50.00	100	125.00	Based on signs of acute toxicity (hunched posture, labored breathing, ataxia) observed in females on the day of treatment.	Rat	Acute Neurotoxicity	48357904	25-Jan-13
207100	Pyrazachlor	Chronic Dietary, General Population	0.15	15.00	100	50.00	Based on effects in the pancreas (both sexes), increases in weights of liver (both sexes) and kidneys, and clinical chemistry findings (both sexes).	Rat	Chronic/ Carcinogenicity	48357907	25-Jan-13
069601	Pyrazon	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jul-05
069601	Pyrazon	Chronic Dietary, General Population	0.18	18.00	100	60.00	Decreased body weight ad body weight gain.	Rat	Chronic	42903404	28-Jul-05
069001	Pyrethrins	Acute Dietary, General Population	0.20	20.00	100	63.00	Tremors in females.	Rat	Acute Neurotoxicity	42825801	29-Jun-17
069001	Pyrethrins	Acute Dietary, Infants and Children	0.20	20.00	100	63.00	Tremors in females.	Rat	Acute Neurotoxicity	42825801	29-Jun-17
069001	Pyrethrins	Chronic Dietary, General Population	0.044	4.40	100	42.90	Increased incidence of thyroid follicular cell hyperplasia in males.	Rat	Chronic/ Carcinogenicity	41559501	29-Jun-17
129105	Pyridaben	Acute Dietary, General Population	0.44	44.0	100	80.0	Piloerection, hypoactivity, tremors, partially closed eyes in males, decreased body weight gain, and food consumption.	Rat	Acute Neurotoxicity	43680412	27-Mar-18
129105	Pyridaben	Chronic Dietary, General Population	0.022	2.2	100	6.3	Based on decreased parental and pup body weight.	Rat	Reproduction	42680143; 42680144	27-Mar-18
295149	Pyridalyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	21-Apr-09
295149	Pyridalyl	Chronic Dietary, General Population	0.034	3.40	100	17.10	Decreased body weight, body weight gain and food efficiency.	Rat	Chronic/ Carcinogenicity	45685227	21-Apr-09
128834	Pyridate	Acute Dietary, General Population	0.20	20.00	100	60.00	Ataxia, emesis.	Dog	Subchronic	40101604	24-Jan-00
128834	Pyridate	Chronic Dietary, General Population	0.11	10.80	100	67.50	Decreased body weight gain.	Rat	Chronic/ Carcinogenicity	00137289; 00137290; 00138638	24-Jan-00
555555	Pyrifluquinazon	Acute Dietary, General Population	1.00	100.00	100	300.00	Based on increased incidences of clinical signs and FOB, decreased body weights and body-weight gains, decreased food consumption, and decreased brain weights.	Rat	Acute Neurotoxicity	48306972	18-Apr-18
555555	Pyrifluquinazon	Acute Dietary, Females 13-49	0.05	5.00	100	10.00	Based on decreased AGD in males, increased incidences of skeletal variations (total), and increased incidences of supernumerary ribs.	Rat	Developmental Toxicity	48306954; 48306955	18-Apr-18
555555	Pyrifluquinazon	Chronic Dietary, General Population	0.06	6.25	100	27.1	Based on decreased mean body weight (M); increased incidences of tactile hair loss (M), endometrial hyperplasia of the uterine horn (F), follicular cell hypertrophy of the thyroid and subcapsular cell hyperplasia of the adrenal (M).	Mouse	Carcinogenicity	48306965	18-Apr-18
288201	Pyrimethanil	Acute Dietary, General Population	1.00	100.00	100	1000.00	Ataxia, decreased motor activity, decreased body temperature, decreased hind limp strength, dilated pupils.	Rat	Acute Neurotoxicity	45657221	22-Sep-15
288201	Pyrimethanil	Acute Dietary, Females 13-49	0.45	45.00	100	300.00	Increase in fetuses with 13 thoracic vertebrae and 13 pairs of ribs.	Rabbit	Developmental Toxicity	43301621	22-Sep-15
288201	Pyrimethanil	Chronic Dietary, General Population	0.17	17.00	100	221.00	Decreased body weight gain, changes in liver enzyme, increased relative liver weights, liver lesions (foci, degeneration, hypertrophy), thyroid lesions (colloid depletion, hypertrophy, hyperplasia of the follicular epithelium).	Rat	Chronic/ Carcinogenicity	43301612	22-Sep-15
028828	Pyriofenone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Apr-19
028828	Pyriofenone	Chronic Dietary, General Population	0.091	9.10	100	46.50	Based on increased nephropathy seen in female rats.	Rat	Chronic/ Carcinogenicity	48112819	25-Apr-19
129032	Pyriproxyfen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Sep-17
129032	Pyriproxyfen	Chronic Dietary, General Population	0.35	35.10	100	183.00	Based on depressed body weight gain, anemia, and increased relative liver weight with elevated cholesterol and phospholipid levels.	Rat	Chronic/ Carcinogenicity	43210503; 41321716	25-Sep-17
078905	Pyrithiobac-sodium	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Dec-17
078905	Pyrithiobac-sodium	Chronic Dietary, General Population	0.587	58.7	100	200.0	Based on decreased body weight, body-weight gains and increased incidence of focal cystic degeneration in the liver (for males), increased rate of hepatic peroxisomal β-oxidation (for males).	Rat	Chronic/ Carcinogenicity	43303101	20-Dec-17
090099	Pyroxasulfone	Acute Dietary, General Population	1.00	100.00	100	300.00	Based on decreased brain weight in both sexes, reduced thickness of the hippocampus, corpus callosum and cerebellum in PND 21 female offspring.	Rat	Developmental Neurotoxicity	47701724	03-Apr-19
090099	Pyroxasulfone	Chronic Dietary, General Population	0.02	2.00	100	10.00	Based on impaired hind limb function, ataxia, hind limb twitching and tremors; clinical pathology; increased creatine kinase, aspartate aminotransferase; axonal/myelin degeneration of the sciatic nerve and spinal cord sections.	Dog	Chronic	47701707	03-Apr-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
108702	Pyroxsulam	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	19-Dec-07
108702	Pyroxsulam	Chronic Dietary, General Population	1.00	100.00	100	1000.00	Increased absolute and relative liver weights and increased incidence of clear cell foci of alteration in hepatocytes (males).	Mouse	Carcinogenicity	46908406	19-Dec-07
128974	Quinchlorac	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Oct-17
128974	Quinchlorac	Acute Dietary, Females 13-49	2.00	200.00	100	600.00	Increased incidence of resorptions, post implantation loss, decreases in live fetuses and fetal weights.	Rabbit	Developmental Toxicity	41063525; 41680501	10-Oct-17
128974	Quinchlorac	Chronic Dietary, General Population	0.38	37.50	100	150.00	Decreased body weight.	Mouse	Carcinogenicity	41063523	10-Oct-17
055459	Quinoxyfen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Aug-17
055459	Quinoxyfen	Chronic Dietary, General Population	0.20	20.00	100	80.00	Decreases in body weight, body weight gain, and increases in severity of chronic progressive glomerulonephropathy.	Rat	Chronic/ Carcinogenicity	45360523	29-Aug-17
128711	Quizalofop-ethyl	See Other	--	--	--	--	Same Dose/Endpoints as: Quizalofop-P-ethyl, (PC Code 128709).	--	--	--	11-Dec-12
128709	Quizalofop-P-ethyl	Acute Dietary, General Population	--	--	--	--	An endpoint attributable to a single dose was not identified.	--	--	--	13-Dec-17
128709	Quizalofop-P-ethyl	Chronic Dietary, General Population	0.009	0.90	100	3.70	Increased incidence of centrilobular enlargement of the liver in both sexes and mild anemia in males.	Rat	Chronic/ Carcinogenicity	00146682	13-Dec-17
097801	Resmethrin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-Mar-06
097801	Resmethrin	Chronic Dietary, General Population	0.035	35.00	1000	70.80	Decreased mating index; decreased vitality index and decreased pup weight.	Rat	Reproduction	43189101	29-Mar-06
129009	Rimsulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	02-May-18
129009	Rimsulfuron	Chronic Dietary, General Population	0.118	11.80	100	121.00	Decreased mean body weight in both sexes and liver effects.	Rat	Chronic/ Carcinogenicity	42047701	02-May-18
071003	RoteNone	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Jun-06
071003	RoteNone	Acute Dietary, Females 13-49	0.015	15.00	100	24.00	Increased resorptions.	Mouse	Developmental Toxicity	00141407; 00145049	28-Jun-06
071003	RoteNone	Chronic Dietary, General Population	0.0004	0.375	100	1.88	Decreased body weight and food consumption in males and females.	Rat	Chronic/ Carcinogenicity	00156739; 41657101	28-Jun-06
118203	Saflufenacil (BAS 800 H)	Acute Dietary, General Population	5.00	500.00	100	2000.00	Decreased motor activity representing mild and transient systemic toxicity in males.	Rat	Acute Neurotoxicity	47128127	05-Nov-15
118203	Saflufenacil (BAS 800 H)	Chronic Dietary, General Population	0.046	4.60	100	13.80	Decreased red blood cells, hemoglobin and hematocrit values and porphyria observed in satellite group.	Mouse	Chronic/ Carcinogenicity	47128119	05-Nov-15
004004	S-Bioallethrin (Esbiol)	See Other	--	--	--	--	Same Dose/Endpoints as: Bioallethrin (D-trans Allethrin), (PC Code 004003).	--	--	--	--
129223	Sedaxane	Acute Dietary, General Population	0.30	30.00	100	250.00	Based on reduced activity, decreased rearing, initial inactivity, piloerection, ruffled fur and recumbency, decreased body weight, body weight gains and food consumption (male); plus weakened condition, swaying gait, decreased activity, reduced muscle tone and decreased locomotor activity & rearing (female). The weakened condition, swaying gait and decreased activity were observed on days 2-7, while the other effects were on day 1.	Rat	Acute Neurotoxicity	47473396	05-Oct-17
129223	Sedaxane	Chronic Dietary, General Population	0.11	11.00	100	67.00	Based on increased liver weight, increased serum phosphate, increased incidences of hepatocyte hypertrophy and eosinophilic foci, and thyroid follicular cell hypertrophy, basophilic colloid and epithelial desquamation (male). In females, it was based on decreased body weight and body weight gain, increased liver weight and the same thyroid histopathology noted for males.	Rat	Chronic/ Carcinogenicity	47473386	05-Oct-17
121001	Sethoxydim	Acute Dietary, General Population	1.80	180.00	100	650.00	Irregular gait seen on the first day of dosing.	Rat	Developmental Toxicity	43092902	11-Mar-15
121001	Sethoxydim	Acute Dietary, Females 13-49	1.80	180.00	100	650.00	Filamentous tail, and lack of tail due to absence of sacral/caudal vertebrae and delayed ossification; Decreased fetal body weight.	Rat	Developmental Toxicity	43092902	11-Mar-15
121001	Sethoxydim	Chronic Dietary, General Population	0.14	14.00	100	41.00	Hepatocellular hypertrophy and fatty degeneration.	Mouse	Chronic/ Carcinogenicity	00100527	11-Mar-15
035509	Siduron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	01-Jul-08
035509	Siduron	Chronic Dietary, General Population	0.15	150.00	1000	750.00	Decreased body weight gain (63% GD7-9) and food consumption (19.3% GD7-9).	Rat	Developmental Toxicity	41390401	01-Jul-08

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
080807	Simazine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Jul-18
080807	Simazine	Acute Dietary, Females 13-49	0.30	30.00	100	300.00	Based on increased incidence of unossified teeth, head, centra vertebrae, sternebrae, and also on rudimentary ribs.	Rat	Developmental Toxicity	40614403; 42634002	10-Jul-18
080807	Simazine	See Other	--	--	--	--	Refer to the Simazine risk assessment for a detailed description of the Cooper et al. (2010) study, and its use in BMD modeling and PBPK modeling to assess the exposure from other oral, dermal, and inhalation exposure.	--	--	--	10-Jul-18
108800	s-Metolachlor	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	27-Sep-18
108800	s-Metolachlor	Chronic Dietary, General Population	0.26	26.00	100	86.00	Based on decreased pup body weight in F1 and F2 litters.	Rat	Reproduction	00080897	27-Sep-18
103901	Sodium bentazon	Acute Dietary, General Population	0.5	50.00	100	150.00	Based on decreased motor activity in males on day 0.	Rat	Acute Neurotoxicity	48970707	02-Dec-14
103901	Sodium bentazon	Chronic Dietary, General Population	0.15	15.00	100	62.00	Based on decreased absolute pup body weights during lactation.	Rat	Reproduction	41054902	02-Dec-14
073301	Sodium Chlorate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified. NOTE: a screening level acute PAD of 1 m/k/d is used for dietary risk based on available human incident report.	--	--	--	26-Jan-06
073301	Sodium Chlorate	Chronic Dietary, General Population	0.03	BMDL = 0.9	30	5.00	Increased thyroid gland follicular cell hypertrophy and follicular cell mineralization.	Rat	Chronic	2004 NTP Report	26-Jan-06
074002	Sodium Cyanide	Acute Dietary, General Population	0.004	Not Est.	100	0.4 mg HCN/kg/ day	Based on clinical signs (nausea 30-31%, vomiting 17-25%, headaches 7-8%, dizziness 7-10%; mental obtundation 4-5% and dermatitis 2%) associated with elevated blood cyanide levels (2-3 µg/ml) observed after single oral dose.	Human	Special/Other	46769602; 46769601; Moertel et al. 1981 and 1982	18-Sep-18
074002	Sodium Cyanide	Chronic Dietary, General Population	--	--	--	--	Chronic POD not selected; Chronic dietary assessment is not needed; Adverse effects are not expected after chronic exposure to sodium cyanide at levels that do not produce an acute response.	--	--	--	18-Sep-18
068304	Sodium dichromate	See Other	--	--	--	--	Same Dose/Endpoints as: Chromic acid, (PC Code 021101).	--	--	--	--
079010	Sodium Dodecylbenzene Sulfonate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	19-Jul-06
079010	Sodium Dodecylbenzene Sulfonate	Chronic Dietary, General Population	0.50	50.00	100	250.00	Decreased Day 21 female pup body weight; Co-critical with 9 month drinking water rat study and 6 month dietary rat study.	Rat	Reproduction	43498416	19-Jul-06
075003	Sodium Fluoroacetate	None	--	--	--	--	Non-food Use chemical. No points of departure were selected. Qualitative assessment only.	--	--	--	20-Sep-18
011104	Sodium Metaborate	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
011112	Sodium Tetraborate Anhydrous	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
011110	Sodium Tetraborate Pentahydrate	See Other	--	--	--	--	Same Dose/Endpoints as: Boric acid, (PC Code 011001).	--	--	--	--
110008	Spinetoram (major component (4,5-dihydro))	See Other	--	--	--	--	Same Dose/Endpoints as: Spinosad, (PC Code 110003).	--	--	--	--
110007	Spinetoram (a mixture of Spinetoram-J and Spinetoram-L)	See Other	--	--	--	--	Same Dose/Endpoints as: Spinosad, (PC Code 110003).	--	--	--	--
110009	Spinetoram (minor component (4-methyl))	See Other	--	--	--	--	Same Dose/Endpoints as: Spinosad, (PC Code 110003).	--	--	--	--
110003	Spinosad	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	16-Jan-18
110003	Spinosad	Chronic Dietary, General Population	0.0249	2.49	100	5.36	Arteritis and necrosis of the arterial walls of the epididymides in males and the thymus, thyroid, larynx and urinary bladder in females.	Dog	Chronic	47011901	16-Jan-18
124871	Spirodiclofen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	11-Nov-11
124871	Spirodiclofen	Chronic Dietary, General Population	0.014	1.38	100	4.33	Increased relative adrenal weight in both sexes; increased relative testes weight in males and histopathology findings in adrenal gland of both sexes.	Dog	Chronic	45696810	11-Nov-11

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
024875	Spiromesifen	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	23-Mar-18
024875	Spiromesifen	Chronic Dietary, General Population	0.022	2.20	100	8.80	Based on significantly decreased spleen weight (absolute and relative in P1 females and F1 males) and significantly decreased growing ovarian follicles in females.	Rat	Reproduction	45819619	23-Mar-18
392201	Spirotetramat	Acute Dietary, General Population	1.0	100.00	100	200.00	Clinical signs and decreased motor activity.	Rat	Acute Neurotoxicity	46904560	21-Apr-17
392201	Spirotetramat	Chronic Dietary, General Population	0.05	5.00	100	20.00	Thymus involution in males.	Dog	Chronic	46904548	21-Apr-17
120759	Spiroxamine	Acute Dietary, General Population	0.10	10.00	100	30.00	Clinical signs (piloerection and slight to moderate gait incoordination) and FOB effects (decreased forelimb grip strength and foot splay) in males.	Rat	Acute Neurotoxicity	45090206	18-Jun-10
120759	Spiroxamine	Chronic Dietary, General Population	0.025	2.50	100	28.03	Hepatocytomegaly, cataracts, and decreased albumin in males and females; liver discoloration and decreased triglycerides in females; and increased alanine aminotransferase in males.	Dog	Chronic	45090214	18-Jun-10
009901	Starlicide	None	--	--	--	--	Non Food Use Chemical. No residential uses; A qualitative hazard characterization is appropriate; Quantitative occupational exposure assessments are not required since the Agency determined that there was low potential for exposure both to occupational handlers and persons entering treated sites after application.	--	--	--	17-Jul-18
006306	Streptomycin	See Other	--	--	--	--	Same Dose/Endpoints as: Streptomycin Sesquisulfate, (PC Code 006310).	--	--	--	--
006310	Streptomycin Sesquisulfate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Nov-18
006310	Streptomycin Sesquisulfate	Chronic Dietary, General Population	0.05	5.00	100	10.00	Based on reduced body weights in males.	Rat	Chronic	FDA and WHO	28-Nov-18
129081	Sulfentrazone	Acute Dietary, General Population	2.50	250.00	100	750.00	Based on increased incidence of clinical signs and FOB parameters and decreased motor activity.	Rat	Acute Neurotoxicity	43345405	15-Mar-18
129081	Sulfentrazone	Acute Dietary, Females 13-49	0.14	14.00	100	33.00	Based on reduced prenatal viability (fetal & litter), reduced litter size, increased no. of stillborn pups, reduced pup and litter postnatal survival and decreased pup body weights throughout lactation.	Rat	Reproduction	43345408	15-Mar-18
129081	Sulfentrazone	Chronic Dietary, General Population	0.14	14.00	100	33.00	Based on reduced prenatal viability (fetal & litter), reduced litter size, increased no. of stillborn pups, reduced pup and litter postnatal survival and decreased pup body weights throughout lactation.	Rat	Reproduction	43345408	15-Mar-18
128992	Sulfluramid	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	27-Mar-01
128992	Sulfluramid	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	27-Mar-01
122001	Sulfometuron Methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
122001	Sulfometuron Methyl	Chronic Dietary, General Population	0.275	27.50	100	148.50	Decreased body weight in males (beginning on the fourth week of exposure and persisted throughout), hemolytic anemia and a slight increase in alkaline phosphatase in males and females.	Dog	Chronic	00129051	15-Sep-15
128501	Sulfosate (Glyphosate-trimesium)	Acute Dietary, General Population	1.00	100.00	100	300.00	Mortality, multiple neurotoxic clinical signs, decreases in body weight and food consumption.	Rat	Acute Neurotoxicity	43132301	20-Mar-01
128501	Sulfosate (Glyphosate-trimesium)	Chronic Dietary, General Population	0.25	25.00	100	50.00	Salivation, emesis, tremors, recumbency, voluntary paddling of the limbs. Hydrocephalus.	Dog	Subchronic	44246704; 41209903; 40214005; 41235902	20-Mar-01
085601	Sulfosulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	16-Sep-15
085601	Sulfosulfuron	Chronic Dietary, General Population	0.24	24.00	100	244.20	Urinary tract pathology (crystals and urinary calculi); mineralization in heart, lung, pancreas and skeletal muscle.	Rat	Chronic/ Carcinogenicity	44295759	16-Sep-15
005210	Sulfoxaflor	Acute Dietary, General Population	0.25	25.00	100	75.00	Based on decreased motor activity.	Rat	Acute Neurotoxicity	47832134	19-Jun-19
005210	Sulfoxaflor	Acute Dietary, Females 13-49	0.06	1.80	30	7.10	Based on decreased neonatal survival on postnatal day (PND) 0 through 4.	Rat	Developmental Neurotoxicity	47832133	19-Jun-19
005210	Sulfoxaflor	Chronic Dietary, General Population	0.05	5.13	100	21.30	Based on liver effects including increased blood cholesterol, liver weight, hypertrophy, fatty change, single cell necrosis and macrophages observed in the males and females.	Rat	Chronic/ Carcinogenicity	47832060	19-Jun-19
078003	Sulfuryl fluoride	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Oct-10
078003	Sulfuryl fluoride	Chronic Dietary, General Population	0.08	0.08	1	--	Severe dental fluorosis.	--	--	H. T. Dean Study 1942	28-Oct-10

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
870401	Surfonic AGM 550	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	25-Jun-01
870401	Surfonic AGM 550	Acute Dietary, Females 13-49	0.75	75.00	100	150.00	Increases in supernumary ribs.	Rat	Developmental Toxicity	44430902	25-Jun-01
870401	Surfonic AGM 550	Chronic Dietary, General Population	0.03	10.00	300	30.00	Decreased body weight gain and increased excessive salivation.	Dog	Subchronic	44430901	25-Jun-01
109302	Tau-fluvalinate	Acute Dietary, General Population	0.01	1.0	100	2.5	Clinical signs of neurotoxicity including excessive salivation, pawing, abnormal stance, excessive lacrimation, ruffling, and hyperactivity, followed by hypoactivity.	Rat	Chronic/ Carcinogenicity	00128334; 00128335; 92069048; 00150111	08-Aug-19
035603	TCMTB (Busan 72)	Acute Dietary, General Population	0.25	25.1	100	76.5	Based on clinical signs (ventral alopecia, rough coat, dyspnea/wheezing, oral discharge, diarrhea/loose stool, urine staining, piloerection, and hunched gait).	Rat	Developmental Toxicity	00154295; 92179009	01-Aug-06
035603	TCMTB (Busan 72)	Chronic Dietary, General Population	0.01	Not Est.	300	3.80	Decreased body weight gain, white cells, monocytes and plasma ALT in males, decreased plasma ALT and uterine weights in females.	Dog	Chronic	41342201; 92179008	01-Aug-06
206900	TCP	Acute Dietary, General Population	0.25	25.00	100	100.00	Hydrocephaly and dilated ventricles.	Rabbit	Developmental Toxicity	40348803	18-Apr-00
206900	TCP	Chronic Dietary, General Population	0.12	12.00	100	48.00	Alterations in clinical chemistry parameters (ALT, ALP).	Dog	Chronic	40365401	18-Apr-00
128997	Tebuconazole	Acute Dietary, General Population	0.029	Not Est.	300	8.80	Decreased body weights and absolute brain weight / measurements and motor activity in offspring.	Rat	Developmental Neurotoxicity	45074301	15-Nov-17
128997	Tebuconazole	Chronic Dietary, General Population	0.029	Not Est.	300	8.80	Decreased body weights and absolute brain weight / measurements and motor activity in offspring.	Rat	Developmental Neurotoxicity	45074301	15-Nov-17
129026	Tebufenozide	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	09-Sep-15
129026	Tebufenozide	Chronic Dietary, General Population	0.02	1.80	100	8.70	Growth retardation, changes is hematology parameters, increases in liver and spleen weights, histopathology of the bone marrow, spleen and liver.	Dog	Chronic	42931203; 42931204; 42436223	09-Sep-15
090102	Tebufenpyrad	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	25-Apr-02
090102	Tebufenpyrad	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	25-Apr-02
105501	Tebuthiuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	20-Dec-18
105501	Tebuthiuron	Chronic Dietary, General Population	0.14	14.00	100	26.00	Decreased body weight in F1 females (13%).	Rat	Reproduction	00090108	20-Dec-18
129048	Teflubenzuron	Acute Dietary, General Population	--	--	--	--	An endpoint of concern attribute to a single dose was not identified. An acute RfD was not established.	--	--	--	19-Aug-15
129048	Teflubenzuron	Chronic Dietary, General Population	0.021	2.10	100	10.50	Based on increased microscopic lesions in the liver (diffuse hypertrophy, centrilobular single-cell necrosis, patchy glycogen storage, Kupffer cell proliferation, phagocytic foci, and centrilobular fatty change) associated with increased relative liver weight.	Mouse	Carcinogenicity	49168813	19-Aug-15
128912	Tefluthrin	Acute Dietary, General Population	0.005	0.5	100	2.0	Based on increased incidence of tremors in the dog (both sexes).	Dog	Chronic	40141308	08-Aug-19
128912	Tefluthrin	Chronic Dietary, General Population	--	--	--	--	A chronic dietary endpoint is not required because repeated exposure to tefluthrin does not result in a lower point of departure. Therefore, the acute endpoint is protective of chronic exposure scenarios.	--	--	--	08-Aug-19
029001	Telone	Acute Dietary, General Population	--	--	--	--	No appropriate endpoint attributable to a single exposure was identified.	--	--	--	24-Jan-08
029001	Telone	Chronic Dietary, General Population	0.025	2.50	100	25.00	Lower body weights and decreased body weight gain (both sexes).	Mouse	Chronic/ Carcinogenicity	43757901	24-Jan-08
012801	Tembotrione	Acute Dietary, General Population	0.0008	Not Est.	1000	0.800	Decreased startle response on PND 60 (males) and brain morphometric changes on PND 75 (males and females).	Rat	Developmental Neurotoxicity	46695725	05-Apr-17
012801	Tembotrione	Chronic Dietary, General Population	0.0004	0.04	100	0.79	Neovascularization and edema of the cornea and snow-flake opacity, unilateral or bilateral keratitis of the eye, decreased mean body weight and mean body weight gain, increased total cholesterol, higher ketone levels and lower pH values, higher protein levels, increased kidney weight, kidney to body weight and kidney to brain weight ratios, chronic nephropathy and atrophy of the sciatic nerve.	Rat	Chronic/ Carcinogenicity	46695708	05-Apr-17

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
059001	Temephos	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Feb-08
059001	Temephos	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Feb-08
121005	Tepraloxydim	Acute Dietary, General Population	0.50	Not Est.	1000	500.00	Decreased motor activity in females.	Rat	Acute Neurotoxicity	44467136	07-Nov-11
121005	Tepraloxydim	Acute Dietary, Females 13-49	0.40	40.00	100	120.00	Retarded ossification indicative of delayed maturation and the occurrence of hydroureter and reduced fetal weights.	Rat	Developmental Toxicity	44467203	07-Nov-11
121005	Tepraloxydim	Chronic Dietary, General Population	0.05	5.00	100	30.00	Eosinophilic foci.	Rat	Chronic/ Carcinogenicity	44467201	07-Nov-11
012701	Terbacil	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Feb-06
012701	Terbacil	Chronic Dietary, General Population	0.014	1.40	100	83.00	Decreased body weight and body weight gain in females.	Rat	Chronic/ Carcinogenicity	42987601	15-Feb-06
105001	Terbufos	Acute Dietary, General Population	0.0003	0.15	500	0.30	Miosis in males and plasma ChEI in both sexes. Additional 5X to account for species sensitivity.	Rat	Acute Neurotoxicity	44672003	02-Sep-99
105001	Terbufos	Chronic Dietary, General Population	0.00005	0.0050	100	0.015	Plasma ChEI. NOAEL/LOAEL from the 28-day study results.	Dog	Chronic	40374701; 00263678	02-Sep-99
084701	Terrazole	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	06-Jun-00
084701	Terrazole	Acute Dietary, Females 13-49	0.15	15.00	100	45.00	Decreased viability, reduced fetal weights and increased skeletal malformations/variations.	Rabbit	Developmental Toxicity	00104999	06-Jun-00
084701	Terrazole	Chronic Dietary, General Population	0.016	4.80	300	30.43	Increased absolute/relative liver weights, hepatocytomegaly and spongiosis hepatis and renal tubule cell karyomegaly.	Rat	Chronic/ Carcinogenicity	40747901	06-Jun-00
083701	Tetrachlorvinphos	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.028	BMDL10 = 2.8	100	BMD10 = 3.2	Based on PND11 and 21 male and female RBC AChE inhibition.	Rat	Comparative Cholinesterase Assay	48773401a	21-Dec-16
083701	Tetrachlorvinphos	Acute Dietary, Adults 50-99 Years	0.028	BMDL10 = 28	100	BMD10 = 3.2	Based on PND 11 and 21 male and female RBC AChE inhibition.	Rat	Comparative Cholinesterase Assay	48773401a	21-Dec-16
083701	Tetrachlorvinphos	Steady State Dietary, Adults 50-99 Years	0.028	BMDL10 = 2.8	100	BMD10 = 3.2	Based on PND 11 and 21 male and female RBC AChE inhibition.	Rat	Comparative Cholinesterase Assay	48773401a	21-Dec-16
083701	Tetrachlorvinphos	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.028	BMDL10 = 2.8	100	BMD10 = 3.2	Based on PND 11 and 21 male and female RBC AChE inhibition.	Rat	Comparative Cholinesterase Assay	48773401a	21-Dec-16
120603	Tetraconazole	Acute Dietary, General Population	0.5	50.00	100	200.00	Due to decreased motor activity on day 0 in both sexes, and clinical signs in females including hunched posture, decreased defecation, and/or red or yellow material on various body surfaces.	Rat	Acute Neurotoxicity	48049401	15-Feb-18
120603	Tetraconazole	Acute Dietary, Females 13-49	0.225	22.50	100	100.00	Increased incidence of small fetuses and supernumary ribs.	Rat	Developmental Toxicity	44335505	15-Feb-18
120603	Tetraconazole	Chronic Dietary, General Population	0.0073	0.73	100	2.95	Increased absolute, relative kidney weights and hypertrophy in the cortical tubules.	Dog	Chronic	44305303	15-Feb-18
069003	Tetramethrin	Acute Dietary, General Population	--	--	--	--	Non Food Use.	--	--	--	20-Sep-16
069003	Tetramethrin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Sep-16
036201	TFM	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	31-Aug-98
036201	TFM	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	31-Aug-98
060101	Thiabendazole	Acute Dietary, General Population	0.5	50.0	100	200.0	Based on decreases in FOB (reduced body temperature in males $p < 0.05$, and reduced rearing in females down54%, $p < 0.01$), reduced locomotor activity in males and females (down 37-46%, $p < 0.01$), at time of peak effect (approximately 3 hours post-dose). Reduced body weight ($p < 0.01$) and food consumption (down 44%, $p < 0.01$) occurred on 1 day.	Rat	Acute Neurotoxicity	48996310	28-Mar-19
060101	Thiabendazole	Chronic Dietary, General Population	0.1	10.0	100	30.0	Reduced body weights (males).	Rat	Chronic/ Carcinogenicity	43593201	28-Mar-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
060102	Thiabendazole hypophosphite	See Other	--	--	--	--	Same Dose/Endpoints as: Thiabendazole, (PC Code 060101).	--	--	--	--
014019	Thiacloprid	Acute Dietary, General Population	0.01	3.10	300	11.00	Reduced motor activity.	Rat	Acute Neurotoxicity	44927703; 44927704	23-Jul-03
014019	Thiacloprid	Chronic Dietary, General Population	0.004	1.20	300	2.50	Hepatic hypertrophy, cellular changes and hypertrophy of the thyroid in males and retinal effects in females.	Rat	Chronic/ Carcinogenicity	44927712	23-Jul-03
060109	Thiamethoxam	Acute Dietary, General Population	0.35	34.50	100	298.70	Based on decreased body weight and reduced brain morphometric measurements.	Rat	Developmental Neurotoxicity	46028202; 46028201	30-Jan-19
060109	Thiamethoxam	Chronic Dietary, General Population	0.012	1.20	100	1.80	Increased incidence and severity of tubular atrophy of the testes in F1 males.	Rat	Reproduction	44718707; 46402904	30-Jan-19
120301	Thidiazuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	31-Aug-05
120301	Thidiazuron	Chronic Dietary, General Population	0.0393	3.93	100	11.1	Increased incidence of anemia, changes in hematological parameters and marked hemosiderosis in liver and spleen.	Dog	Chronic	00159344	31-Aug-05
015804	Thiencarbazone-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	07-Jun-18
015804	Thiencarbazone-methyl	Chronic Dietary, General Population	1.17	117.00	100	179.00	Urothelial effects in both sexes.	Dog	Chronic	47070133	07-Jun-18
128845	Thifensulfuron methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributed to a single dose was not identified for this population subgroup.	--	--	--	15-Sep-15
128845	Thifensulfuron methyl	Acute Dietary, Females 13-49	1.59	159.00	100	725.00	Decreased mean body weight and increased incidence of small renal papillae.	Rat	Developmental Toxicity	00143661	15-Sep-15
128845	Thifensulfuron methyl	Chronic Dietary, General Population	0.043	04.30	100	128.00	Based on decreased body weight and body weight gain.	Mouse	Carcinogenicity	00161275; 40340321	15-Sep-15
108401	Thiobencarb	Acute Dietary, General Population	1.00	100.00	100	500.00	Based on gait abnormalities, decreased sensory responses, decreased body temperature and decreased motor activity.	Rat	Acute Neurotoxicity	42987001	29-Mar-18
108401	Thiobencarb	Chronic Dietary, General Population	0.01	1.0	100	5.00	Based on clinical signs, increased BUN, increased relative liver and kidney weight and histopathological changes in liver and kidney.	Rat	Carcinogenicity/ Oncogenicity	00154506	29-Mar-18
114501	Thiodicarb	See Other	--	--	--	--	Same Dose/Endpoints as: Methomyl, (PC Code 090301).	--	--	--	--
102001	Thiophanate-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	24-Jun-09
102001	Thiophanate-methyl	Acute Dietary, Females 13-49	0.20	20.00	100	40.00	Increased incidences of supernumerary ribs.	Rabbit	Developmental Toxicity	45051001	24-Jun-09
102001	Thiophanate-methyl	Chronic Dietary, General Population	0.0267	8.00	300	40.00	Decreases in body weight, body weight gain and alterations in thyroid hormones, thyroid weights and histopathological lesions in the thyroids.	Dog	Chronic	42311801	24-Jun-09
079801	Thiram	Acute Dietary, General Population	0.6494	5.00; BMDL10 = 64.94	100	150.00	Reduced motor activity, decreased brain weights and FOB effects (lethargy, lower temperature, reduced startle response, no tail pinch pressure).	Rat	Acute Neurotoxicity	42912401	21-May-15
079801	Thiram	Acute Dietary, Females 13-49	0.014	1.40	100	3.70	Increased locomotor activity in females on PND17.	Rat	Developmental Neurotoxicity	46455201	21-May-15
079801	Thiram	Chronic Dietary, General Population	0.015	1.50	100	7.30	Changes in hematology, clinical chemistry parameters, bile duct hyperplasia, decreases in body weight gain in rats; elevated cholesterol levels and increased liver weights in dogs.	Rat	Chronic/ Carcinogenicity	41967901; 42157601	21-May-15
074752	Tioxazafen	Acute Dietary, General Population	0.25	Not Est.	1000	250	Based on decreased total motor and ambulatory activity counts (observed at time of peak).	Rat	Acute Neurotoxicity	49304306	21-Mar-17
074752	Tioxazafen	Chronic Dietary, General Population	0.05	5.0	100	20.0	Based on adrenal effects (increased weight and vacuolation of the adrenal gland) in males.	Rat	Reproduction	49304292	21-Mar-17
128905	Tolclofos-methyl	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Nov-12
128905	Tolclofos-methyl	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	20-Nov-12
090111	Tolfenpyrad	Acute Dietary, General Population	0.1	10.00	100	20.00	Based on decreased body weight, body weight gain, and food consumption.	Rat	Acute Neurotoxicity	47447831	03-Dec-18
090111	Tolfenpyrad	Chronic Dietary, General Population	0.006	0.60	100	1.50	Based on decreased body weight, body weight gain, and food consumption females, gross changes in the Harderian glands of males, and histopathological changes in the liver, kidney and mesenteric lymph nodes of females and the kidney of males.	Rat	Chronic/ Carcinogenicity	47463704	03-Dec-18

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
573101	Tolpyralate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	28-Apr-17
573101	Tolpyralate	Acute Dietary, Females 13-49	0.05	5	100	50	Based an increased incidence of skeletal abnormalities (range-finding study).	Rabbit	Developmental Toxicity	49559423; 49559428	28-Apr-17
573101	Tolpyralate	Chronic Dietary, General Population	0.0093	0.925	100	97	Based on fur loss, eye opacity/neovascularization/keratitis, increased relative liver weight, thyroid follicular cell hypertrophy, hepatocellular centrilobular fatty change, increased pancreatic acinar cell necrosis, renal tubule basophilic change, increased molecular layer vacuolation in the cerebellum (males).	Rat	Chronic	49580133	28-Apr-17
309200	Tolyfluanid	Acute Dietary, General Population	0.17	50.0	300	150.0	Decreased motor and locomotor activity and FOB.	Rat	Acute Neurotoxicity	45302723; 45302725	14-Aug-02
309200	Tolyfluanid	Acute Dietary, Females 13-49	0.08	25.0	300	70.0	Malformations (arthrogryposis of front extremities and small orbital cavity/folded retina) and variations (floating rib and accelerated ossification).	Rabbit	Developmental Toxicity	44241022; 44241023; 45302618; 44241021	14-Aug-02
309200	Tolyfluanid	Chronic Dietary, General Population	0.026	7.9	300	57.5	Parental: Decreased body weight, body weight gains and decreases in absolute and relative liver weights.	Rat	Reproduction	44241030; 45302620	14-Aug-02
123009	Topramezone	Acute Dietary, General Population	0.008	Not Est.	1000	8.0	Based on decreased maximum auditory startle reflex response, decreased brain weights, and changes in brain morphology.	Rat	Developmental Neurotoxicity	45902304	09-Jan-17
123009	Topramezone	Acute Dietary, Females 13-49	0.005	0.50	100	5.0	Based on alterations in skeletal ossification sites and increased number of pairs of ribs.	Rabbit	Developmental Toxicity	45902210	09-Jan-17
123009	Topramezone	Chronic Dietary, General Population	0.004	0.40	100	3.60	Based on increased incidences of corneal opacity, decreased body weight and body weight gain in males; and histopathological evaluations (dose-dependent increases of the incidence in thyroid, pancreas, liver, and eyes) in both sexes.	Rat	Carcinogenicity	45902222	09-Jan-17
121000	Tralkoxydim	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	08-Jul-98
121000	Tralkoxydim	Acute Dietary, Females 13-49	0.30	30.00	100	200.00	Delayed ossification of the centrum and hemicentrum, centrum bipartite, misshapen centra and fused centra.	Rat	Developmental Toxicity	43339717	08-Jul-98
121000	Tralkoxydim	Chronic Dietary, General Population	0.005	0.50	100	5.00	Changes in liver function and morphology.	Dog	Chronic	43339709	08-Jul-98
129140	Transfluthrin	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	01-Jun-18
129140	Transfluthrin	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	01-Jun-18
109901	Triadimefon	Acute Dietary, General Population	0.034	3.4	100	54.6	Hyperactivity.	Rat	Subchronic Neurotoxicity	44153501	03-Aug-09
109901	Triadimefon	Chronic Dietary, General Population	0.034	3.4	100	54.6	Hyperactivity.	Rat	Subchronic Neurotoxicity	44153501	03-Aug-09
127201	Triadimenol	Acute Dietary, General Population	0.0034	3.4	1000	54.6	Hyperactivity.	Rat	Subchronic Neurotoxicity	44153501	09-Feb-06
127201	Triadimenol	Chronic Dietary, General Population	0.0034	3.4	1000	54.6	Hyperactivity.	Rat	Subchronic Neurotoxicity	44153501	09-Feb-06
078802	Triallate	Acute Dietary, General Population	0.60	60.00	100	300.00	Decreases in forelimb strength and altered motor activity.	Rat	Acute Neurotoxicity	42908101	08-Dec-08
078802	Triallate	Acute Dietary, Females 13-49	0.05	5.00	100	15.00	Increased incidences of skeletal malformations (fused sternebrae).	Rabbit	Developmental Toxicity	00248293	08-Dec-08
078802	Triallate	Chronic Dietary, General Population	0.025	2.50	100	12.50	Decreased survival, decreased body weights and increased adrenal weights.	Rat	Chronic/ Carcinogenicity	40384701	08-Dec-08
128969	Triasulfuron	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	10-Sep-15
128969	Triasulfuron	Chronic Dietary, General Population	0.01	1.20	100	129.00	Significant increase in centrilobular hepatocytomegaly.	Mouse	Carcinogenicity	40728316	10-Sep-15
128100	Triazamate	Acute Dietary, General Population	0.00068	0.068	100	0.50	Decreases in body weight and food consumption and clinical signs.	Rabbit	Developmental Toxicity	42935028	10-Jun-99
128100	Triazamate	Chronic Dietary, General Population	0.0002	0.0164	100	0.0236	Brain ChEI.	Dog	Chronic	43000205	10-Jun-99

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
600082	Triazole Acetic Acid	See Other	--	--	--	--	Same Dose/Endpoints as: Triazole alanine, (PC Code 600011).	--	--	--	--
600011	Triazole alanine	Acute Dietary, General Population	--	--	--	--	No appropriate dose and endpoint could be identified for these population groups.	--	--	--	07-Feb-06
600011	Triazole alanine	Acute Dietary, Females 13-49	0.1	100.0	1000	300.0	Based on increased incidence of skeletal findings (unossified odontoid process).	Rat	Developmental Toxicity	00138128; 00147889	07-Feb-06
600011	Triazole alanine	Chronic Dietary, General Population	0.09	90.0	1000	370.0	Based on decreased leukocyte counts in males and decreased triglycerides in females.	Rat	Oral	00164107	07-Feb-06
128887	Tribenuron methyl	Acute Dietary, General Population	3.0	300.00	100	1000.00	Based on body weight changes (BW loss in males, decreased BWG in females), reduced food consumption, and/or food efficiency, and transient effects on motor activity and rearing.	Rat	Acute Neurotoxicity	48732501	15-Sep-15
128887	Tribenuron methyl	Chronic Dietary, General Population	0.008	0.80	100	8.16	Elevated bilirubin, AST, increased urinary volume and reduced body weight gain (20%).	Dog	Chronic	40245512	15-Sep-15
074801	Tribufos	Acute Dietary, All Populations (Except Adults 50-99 Years)	0.01	BMDL10 = 1.05	100	BMD10 = 1.41	Inhibition of RBC ChE in male rat pups.	Rat	Comparative Cholinesterase Assay	48707704	15-Sep-15
074801	Tribufos	Acute Dietary, Adults 50-99 Years	0.01	BMDL10 = 1.05	100	BMD10 = 1.41	Inhibition of RBC ChE in male rat pups.	Rat	Comparative Cholinesterase Assay	48707704	15-Sep-15
074801	Tribufos	Steady State Dietary, Adults 50-99 Years	0.002	BMDL10 = 0.19	100	BMD10 = 0.27	Based on RBC ChE inhibition in adult female rats.	Rat	Subchronic Neurotoxicity	45369101	15-Sep-15
074801	Tribufos	Steady State Dietary, All Populations (Except Adults 50-99 Years)	0.002	BMDL10 = 0.19	100	BMD10 = 0.27	Based on RBC ChE inhibition in adult female rats.	Rat	Subchronic Neurotoxicity	45369101	15-Sep-15
083118	Tributyltin maleate	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	31-Mar-05
083118	Tributyltin maleate	Chronic Dietary, General Population	--	--	--	--	Non Food Use Chemical.	--	--	--	31-Mar-05
057901	Trichlorfon	Acute Dietary, General Population	0.10	10.00	100	50.00	Plasma, RBC, Brain ChEI; Decreased motor activity; FOB changes.	Rat	Acute Neurotoxicity	04457801	19-Sep-00
057901	Trichlorfon	Chronic Dietary, General Population	0.002	0.20	100	1.00	Brain ChEI.	Monkey	Chronic/ Carcinogenicity	40776001	19-Sep-00
116001	Triclopyr	Acute Dietary, General Population	1.0	100.0	100	300.0	Based on mortality. Additional effects seen at this dose included clinical signs, necropsy findings, decreased food and water consumption, and increased kidney and liver weights.	Rat	Developmental Toxicity	43675801	13-Dec-16
116001	Triclopyr	Acute Dietary, Females 13-49	0.05	5.00	100	25.00	Increased incidence offspring with exencephaly and ablepharia.	Rat	Reproduction	43545701	13-Dec-16
116001	Triclopyr	Chronic Dietary, General Population	0.05	5.00	100	25.00	Proximal renal tubular degeneration.	Rat	Reproduction	43545701	13-Dec-16
054901	Triclosan	Acute Dietary, General Population	0.30	30.0	100	100.0	Diarrhea seen after 4-6 hours.	Baboon	Chronic	00257773	22-Oct-98
054901	Triclosan	Chronic Dietary, General Population	0.30	30.0	100	100.0	Diarrhea, Hematology.	Baboon	Chronic	00257773	22-Oct-98
120201	Tricyclazole	Acute Dietary, General Population	0.07	7.00	100	26.7	Based on increased pup death (PND 1-4).	Rat	Reproduction	48918221	01-Apr-14
120201	Tricyclazole	Chronic Dietary, General Population	0.067	6.67	100	21.8	Based on liver effects (increased weights and histopathology).	Mouse	Carcinogenicity	48918213; 48918226	01-Apr-14
121401	Tridemorph	Acute Dietary, Females 13-49	0.02	20.60	1000	60.20	Cleft palate, brachygnathia inferior, fused vertebral arches, cleft thoracic vertebral centrum/centra.	Rat	Developmental Toxicity	Merkle et al. 1984	07-Nov-05
121401	Tridemorph	Chronic Dietary, General Population	0.01	31.3	3000	Not Est.	No effects observed at the HDT.	Dog	Subchronic	00151325	07-Nov-05
129112	Trifloxystrobin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	29-May-19
129112	Trifloxystrobin	Acute Dietary, Females 13-49	2.50	250.00	100	500.00	Based upon increased fetal skeletal anomalies (increased fused sternebrae).	Rabbit	Developmental Toxicity	44496709	29-May-19
129112	Trifloxystrobin	Chronic Dietary, General Population	0.038	3.80	100	55.30	Maternal: based on decreased body weight and histopathological lesions in the liver, kidney and spleen. Offspring: based on decreased pup body weights during lactation.	Rat	Reproduction	44496710; 44496704	29-May-19

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
119009	Trifloxysulfuron Sodium	Acute Dietary, General Population	6.00	600.0	100	2000.0	Decreased motor activity on day 1 and histopathological lesions in nervous system tissues of males and females.	Rat	Acute Neurotoxicity	45372019	15-Sep-15
119009	Trifloxysulfuron Sodium	Acute Dietary, Females 13-49	0.50	50.00	100	100.00	Abnormal shaped hearts in the fetuses.	Rabbit	Developmental Toxicity	45372005; 45372027	15-Sep-15
119009	Trifloxysulfuron Sodium	Chronic Dietary, General Population	0.237	23.70	100	99.30	Tubular atrophy of the kidneys.	Rat	Chronic/ Carcinogenicity	45372010	15-Sep-15
129210	Triflumezopyrim	Acute Dietary, General Population	1.0	100.0	100	500.0	Based on decreased motor activity on day of dosing.	Rat	Acute Neurotoxicity	49382178	17-Aug-17
129210	Triflumezopyrim	Chronic Dietary, General Population	0.17	17.00	100	74.00	Based on decreased absolute bodyweights in females and increased incidence of bile duct hyperplasia in males.	Rat	Chronic/ Carcinogenicity	49382173	17-Aug-17
128879	Triflumizole	Acute Dietary, General Population	0.25	25.00	100	100.00	Neuromuscular impairment and decreased locomotor activity.	Rat	Acute Neurotoxicity	46202501	05-Jun-14
128879	Triflumizole	Acute Dietary, Females 13-49	0.10	10.00	100	35.0	Decreased viable fetuses, increased dead/resorbed fetuses, increased late resorptions, decreased fetal body weight and increased incidence of cervical ribs.	Rat	Developmental Toxicity	45458001	05-Jun-14
128879	Triflumizole	Chronic Dietary, General Population	0.0117	Not Est.	300	3.50	Liver toxicity (eosinophilic foci in male rats and fatty vacuolation and inflammation and necrosis in female rats).	Rat	Chronic/ Carcinogenicity	00156545	05-Jun-14
036101	Trifluralin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	02-Apr-13
036101	Trifluralin	Acute Dietary, Females 13-49	1.00	100.00	100	500.00	Increases in resorptions.	Rat	Developmental Toxicity	00151899; 00159620; 40392310	02-Apr-13
036101	Trifluralin	Chronic Dietary, General Population	0.024	2.40	100	40.00	Decreases in body weight, body weight gain, abnormal stool, decreased erythrocytes and hemoglobin and increased thrombocytes.	Dog	Chronic	42447001	02-Apr-13
129002	Triflusulfuron-methyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	15-Sep-15
129002	Triflusulfuron-methyl	Chronic Dietary, General Population	0.0244	2.44	100	30.6	Decreases in body weight, body weight gains, alterations in hematology parameters and interstitial cell hyperplasia of the testes.	Rat	Chronic/ Carcinogenicity	42991413	15-Sep-15
107901	Triforine	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	22-Jan-13
107901	Triforine	Chronic Dietary, General Population	0.22	22.00	100	120.00	Based on decreased RBC, hematocrit, hemoglobin values, increased spleen weight, and siderosis in the liver, spleen and bone marrow.	Dog	Subchronic; Chronic	00122575; 42380410; 43222102	22-Jan-13
005209	Triisopropanolamine salt of aminopyralid	See Other	--	--	--	--	Same Dose/Endpoints as: Aminopyralid, (PC Code 005100).	--	--	--	--
112602	Trinexapac-Ethyl	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	23-Feb-15
112602	Trinexapac-Ethyl	Acute Dietary, Females 13-49	0.60	60.00	100	360.00	Decrease in mean number of fetuses/litter and increase in post-implantation loss and early resorptions.	Rabbit	Developmental Toxicity	41869524	23-Feb-15
112602	Trinexapac-Ethyl	Chronic Dietary, General Population	0.32	31.62	100	357.00	Elevated serum cholesterol values in females; mucoid feces in females and bloody feces in both sexes; minimal, focal vacuolation of the dorsal medial hippocampus and/or lateral midbrain in both sexes.	Dog	Chronic	42779402; 42779401	23-Feb-15
083601	Triphenyltin hydroxide (TPTH)	Acute Dietary, General Population	0.005	Not Est.	1000	5.00	Based on excessive grooming, piloerection, increased activity during handling and gait changes. NOAEL was not established.	Rat	Acute Neurotoxicity	45299901	19-Sep-18
083601	Triphenyltin hydroxide (TPTH)	Acute Dietary, Females 13-49	0.003	0.30	100	0.90	Based on lower fetal body weight and increased incidents of unossified hyoid body and/or arches.	Rabbit	Developmental Toxicity	40104801	19-Sep-18
083601	Triphenyltin hydroxide (TPTH)	Chronic Dietary, General Population	0.001	0.10	100	0.25	Based on decreases in white cell count.	Rat	Chronic	00080390	19-Sep-18
125620	Triticonazole	Acute Dietary, General Population	4.00	400.00	100	2000.00	Increased motor activity in both sexes.	Rat	Acute Neurotoxicity	44802036	30-May-13
125620	Triticonazole	Acute Dietary, Females 13-49	0.50	50.00	100	75.00	Increases in abortions, pre/post implantation loss, and cranial variations.	Rabbit	Developmental Toxicity	44802106	30-May-13
125620	Triticonazole	Chronic Dietary, General Population	0.17	17.40	100	202.20	Decreased in body weight gain and liver toxicity.	Mouse	Carcinogenicity	44802108	30-May-13

PC Code	Common Name	Exposure	RfD	NOAEL	UF	LOAEL	Results	Species	Study	MRID	Date
128976	Uniconazole	See Other	--	--	--	--	Same Dose/Endpoints as: Uniconazole-P, (PC Code 138976).	--	--	--	--
138976	Uniconazole-P	Acute Dietary, General Population	1.0	100	100	200	Based on decreased spontaneous activity and urinary incontinence.	Rat	Acute	40345405	24-Jun-19
138976	Uniconazole-P	Acute Dietary, Females 13-49	0.05	5.00	100	25.00	Increased incidence of 14th rib.	Rat	Developmental Toxicity	40462609; 42123201	24-Jun-19
138976	Uniconazole-P	Chronic Dietary, General Population	0.02	2.00	100	20.00	Increased absolute and relative liver weight changes in males supported by histological and enzyme changes in liver.	Dog	Chronic	41162001	24-Jun-19
128200	Valifenalate	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	03-May-19
128200	Valifenalate	Chronic Dietary, General Population	0.22	22.00	100	97.00	Based on an increased absolute and relative liver weights, and hepatocyte hypertrophy as well as an increased incidence of macroscopic liver abnormalities (liver masses, pale areas, accentuated lobular patterns, and increased eosinophilic foci) in both sexes and centrilobular vacuolation in males.	Mouse	Carcinogenicity	49807232	03-May-19
113201	Vinclozolin	Acute Dietary, General Population	--	--	--	--	An appropriate endpoint attributable to a single dose was not identified.	--	--	--	12-May-00
113201	Vinclozolin	Acute Dietary, Females 13-49	0.06	3.125 (6.0)	100	11.5	Decreased ventral prostate weights.	Rat	Developmental Toxicity	44395701; 44395702	12-May-00
113201	Vinclozolin	Chronic Dietary, General Population	0.012	1.20	100	2.300	Histopathological lesions in the lungs (males), liver (males), ovaries (females) and eyes (both sexes).	Rat	Chronic/ Carcinogenicity	43254701; 43254702; 43254703	12-May-00
063510	White mineral oil (from 063502)	See Other	--	--	--	--	Same Dose/Endpoints as: Aliphatic petroleum solvent, (PC Code 063503).	--	--	--	--
129064	Zeta-Cypermethrin	See Other	--	--	--	--	Same Dose/Endpoints as: Cypermethrin, (PC Code 109702).	--	--	--	--
088002	Zinc 2-pyridinethiol 1-oxide	Acute Dietary, General Population	0.0075	0.7500	100	3.00	Increased incidences of salivation.	Rat	Developmental Toxicity	42827905	19-Mar-99
088002	Zinc 2-pyridinethiol 1-oxide	Acute Dietary, Females 13-49	0.005	0.5000	100	1.50	Post implantation loss and decreased viable fetuses.	Rabbit	Developmental Toxicity	42827905	19-Mar-99
088002	Zinc 2-pyridinethiol 1-oxide	Chronic Dietary, General Population	0.0005	0.5000	1000	1.50	Post implantation loss and decreased viable fetuses.	Rabbit	Developmental Toxicity	42827905	19-Mar-99
088601	Zinc phosphide	Acute Dietary, General Population	--	--	--	--	Non Food Use Chemical (Bait).	--	--	--	23-Sep-03
088601	Zinc phosphide	Chronic Dietary, General Population	0.0001	0.10	1000	1.00	Increased mortality and kidney hydronephrosis in males.	Rat	Subchronic	43436601	23-Sep-03
034805	Ziram	Acute Dietary, General Population	0.05	Not Est.	300	15.00	Ataxia and slight impaired gait.	Rat	Acute Neurotoxicity	43362801	20-Oct-17
034805	Ziram	Chronic Dietary, General Population	0.016	1.60	100	6.60	Decreased body weight gain.	Dog	Chronic	42823901	20-Oct-17
101702	Zoxamide	None	--	--	--	--	Given the low toxicity throughout the database and absence of effects at regulatorily relevant doses, toxicity endpoints and points of departures were not selected for zoxamide. A qualitative assessment of zoxamide is appropriate.	--	--	--	29-Mar-19

Chemicals Evaluated for Carcinogenic Potential

Science Information Management Branch

Health Effects Division

Office of Pesticide Programs

U.S. Environmental Protection Agency

CHEMICAL	CAS NO.	PC CODE	CANCER CLASSIFICATION	REPORT DATE	QUANTIFICATION METHOD	TUMOR SITES/ STRAIN/ SPECIES/ SEX
1,2,4-Triazole	288-88-0	600074	Group E--Evidence Of Non-Carcinogenicity For Humans.	2/7/2006	RfD Approach	Not Applicable
1,3-Dibromo-5,5-dimethylhydantoin	77-48-5	006317	Not Likely to Be Carcinogenic to Humans.	8/28/2000	NR	Not Applicable
1,3-dichloro-5-methylhydantoin	89415-87-2	128826	Not Likely to Be Carcinogenic to Humans.	8/28/2000	NR	Not Applicable
2, 4 - DBA	94-82-6	030801	Not Likely To Be Carcinogenic To Humans.	6/13/2003	NR	Not Applicable
2,4-D + Salts & Esters	94-75-7	030001	Group D--Not Classifiable As To Human Carcinogenicity.	1/29/1997	NR	Not Applicable
2,4-D Choline	1048373-72-3	051505	Group D--Not Classifiable As To Human Carcinogenicity.	10/27/2011	NR	Not Applicable
2,4-DB DMA	2758-42-1	030819	Not Likely To Be Carcinogenic To Humans.	7/20/2004	NR	Not Applicable
2,4-DP-p Salts & Esters	15165-67-0	031402	Not Likely To Be Carcinogenic To Humans.	12/5/2013	NR	Not Applicable
2-Benzyl-4-chlorophenol	120-32-1	062201	Group C--Possible Human Carcinogen.	9/5/1995	RfD Approach	Kidney tumors in B6C3F1 mice (M), Fisher 344 rats (F)
2-Fluoroacetamide	640-19-7	075002	Not Required (Non-Food).	9/20/2018	NR	Not Applicable
4-aminopyridine	504-24-5	069201	Group D--Not Classifiable As To Human Carcinogenicity.	8/6/2007	NR	Not Applicable
4-Chlorophenoxyacetic acid	122-88-3	019401	Cancer Classification Not Evaluated (Waivers Granted).	7/17/2014	NR	Not Applicable
Acephate	30560-19-1	103301	Group C--Possible Human Carcinogen.	5/8/1985	NR	Not Applicable
Acequinocyl	57960-19-7	006329	Not Likely To Be Carcinogenic To Humans.	11/13/2003	NR	Not Applicable
Acetamide	63114-77-2	111101	Group C--Possible Human Carcinogen.	5/29/1990	NR	Liver tumors in Fisher 344 rats (M)(F), Wistar rats (M)
Acetamiprid	135410-20-7	099050	Not Likely To Be Carcinogenic To Humans.	12/11/2001	NR	Not Applicable
Acetochlor	34256-82-1	121601	Suggestive Evidence Of Carcinogenic Potential.	1/3/2007	RfD Approach	Lung tumors in CD-1 mice (M)(F); Established a cytotoxic (secondary to oxidative damage by a reactive quinone imine intermediate) MOA for the nasal olfactory epithelial tumors and a hormonal mode of action for thyroid follicular cell tumors in rats.
Acibenzolar-S-methyl	135158-54-2	061402	Not Likely To Be Carcinogenic To Humans.	12/9/1999	NR	Not Applicable
Acifluorfen sodium	62476-59-9	114402	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	7/9/2003	MOE Approach	Liver tumors in B6C3F1 mice (M)(F), CD-1 mice (M)(F); Established a PPARα MOA for liver tumors in mice.
Acrinathrin	101007-06-1	129141	Group D--Not Classifiable As To Human Carcinogenicity.	7/15/1996	NR	Not Applicable
ADBAC	68424-85-1	069105	Not Likely To Be Carcinogenic To Humans.	12/8/1999	NR	Not Applicable
Afidopyropen	915972-17-7	026200	Suggestive Evidence Of Carcinogenic Potential.	1/24/2018	NR	Uterus tumors in F344/DuCrlCrlj rats (F); MOA not supported.
Alachlor	15972-60-8	090501	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	6/27/1997	MOE Approach	Stomach, Nasal, Thyroid tumors in Long Evans rats (M)(F); Established a hormonal MOA for thyroid tumors in rats.
Aldicarb	116-06-3	098301	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/17/2002	NR	Not Applicable
Alpha-Cypermethrin	67375-30-8	209600	Group C--Possible Human Carcinogen.	9/11/2012	NR	Lung tumors in Alderly Park SPF Swiss mice (F)
Ametoctradin	865318-97-4	119210	Not Likely To Be Carcinogenic To Humans.	5/24/2017	NR	Not Applicable
Ametryn	834-12-8	080801	Suggestive Evidence Of Carcinogenic Potential.	12/20/2017	RfD Approach	Presence of tumors observed only at a dose (high dose) that was considered excessive in the rat during the first 8 months of the study; however, the mid-dose showed only minimal evidence of toxicity. Supported by the lack of tumors observed at any dose in male or female mice and the lack of a concern for mutagenicity.
Amicarbazone	129909-90-6	114004	Not Likely To Be Carcinogenic To Humans.	8/10/2005	NR	Not Applicable
Aminocyclopyrachlor	858956-08-8, 858956-35-1, 858954-83-3, 124423-84-3, 1759-53-1	288008	Not Likely To Be Carcinogenic To Humans.	11/9/2011	NR	Not Applicable

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Aminopyralid	150114-71-9	005100	Not Likely To Be Carcinogenic To Humans.	7/12/2005	NR	Not Applicable
Amisulbrom	348635-87-0	016330	Suggestive Evidence Of Carcinogenic Potential.	12/2/2010	NR	Forestomach tumors in Wistar rats (F); Liver tumors in CD-1 mice (M), Wistar rats (M)(F)
Amitraz	33089-61-1	106201	Suggestive Evidence Of Carcinogenic Potential.	7/18/2006	NR	Lymph tumors in CFLP mice (F); Liver tumors in B6C3F1 mice (F); Lung tumors in B6C3F1 mice (M)
Amitrole	61-82-5	004401	Not Likely to Be Carcinogenic to Humans: at Doses That Do Not Alter Rat Thyroid Hormone Homeostasis.	5/11/2006	NR	Thyroid tumors in Charworth Farms rats (M), Fisher 344 rats (M), Wistar rats (M)(F); Established a hormonal MOA for thyroid tumors in rats.
Anthraquinone	84-65-1	122701	Likely to Be Carcinogenic to Humans.	10/31/2012	Q1* = 6.17 X 10E-2 Based on male mouse liver tumors combined.	Kidney tumors in Fisher 344 rats (F); Liver, Thyroid tumors in B6C3F1 mice (M)(F)
Aquashade	2650-18-2	110301	Not Likely To Be Carcinogenic To Humans.	9/27/2005	NR	Not Applicable
Asulam	3337-71-1	106901	Group C--Possible Human Carcinogen.	12/6/2001	NR	Adrenal, Thyroid tumors in Sprague-Dawley rats (M)
Atrazine	1912-24-9	080803	Not Likely To Be Carcinogenic To Humans.	12/13/2000	NR	Mammary, Pituitary tumors in SD rats (F); Established a neuroendocrine disruption MOA for mammary and pituitary tumors in rats.
Avermectin (see Emamectin Benzoate)	65195-55-3	122804	Group E--Evidence Of Non-Carcinogenicity For Humans.	6/27/1996	NR	Not Applicable
Azafenidin	68049-83-2	119016	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	10/18/1999	NR	Not Applicable
Azinphos-methyl	86-50-0	058001	Not Likely To Be Carcinogenic To Humans.	4/20/1998	NR	Not Applicable
Azoxystrobin	131860-33-8	128810	Not Likely To Be Carcinogenic To Humans.	1/14/1997	NR	Not Applicable
Benalaxyl-M	98243-83-5	113510	Likely To Be Carcinogenic To Humans.	12/2/2014	Q1* = 5.90 X 10E-3	Liver tumors in CD-1 mice (M), Sprague-Dawley rats (M)(F); Thyroid tumors in Sprague-Dawley rats (F); MOA not supported.
Bendiocarb	22781-23-3	105201	Group E--Evidence Of Non-Carcinogenicity For Humans.	12/16/1997	NR	Not Applicable
Benfluralin	1861-40-1	084301	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	12/27/2001	NR	Liver tumors in B6C3F1 mice (F)
Benomyl	17804-35-2	099101	Group C--Possible Human Carcinogen.	9/21/2000	Q1* = 2.39 E-3 (3/4)	Liver tumors in CD-1 mice (M)(F), Swiss SPF mice (M)(F)
Bensulide	741-58-2	009801	Not Likely To Be Carcinogenic To Humans.	6/10/1999	NR	Not Applicable
Bentazon	25057-89-0	275200	Group E--Evidence Of Non-Carcinogenicity For Humans.	1/14/1992	NR	Not Applicable
Benthiavalicarb-isopropyl	177406-68-7	098379	Likely To Be Carcinogenic To Humans.	10/18/2005	Q1* = 6.2795 E-2 (3/4)	Liver tumors in B6C3F1 Mouse (M)(F); Thyroid tumors in B6C3F1 Mouse (M); Uterine tumors in Fisher 344 rats (F)
Benzobicyclon	156963-66-5	215101	Not Likely To Be Carcinogenic To Humans.	4/5/2017	NR	Not Applicable
Benzyl Benzoate	120-51-4	009501	Not Likely To Be Carcinogenic To Humans.	6/28/2007	NR	Not Applicable
Beta Cyfluthrin	68359-37-5	118831	Not Likely To Be Carcinogenic To Humans.	1/27/2010	NR	Not Applicable
Bicyclopyrone	365400-11-9	018986	Suggestive Evidence Of Carcinogenic Potential.	9/10/2014	RfD Approach	Ocular tumors in Han Wistar rats (M)
Bifenazate	149877-41-8	000586	Not Likely To Be Carcinogenic To Humans.	8/28/2001	NR	Not Applicable
Bifenthrin	82657-04-3	128825	Group C--Possible Human Carcinogen.	2/19/2003	RfD Approach	Liver, Urinary Bladder tumors in Swiss-Webster Tac(SW)fBR mice (M); Lung tumors in Swiss-Webster Tac(SW)fBR mice (F)
Bioallethrin	584-79-2	004003	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	12/2/2003	NR	Kidney tumors in Sprague-Dawley CD-SD (BR) rats (M)
Bispyrabac Sodium	125401-92-5	078906	Not Likely To Be Carcinogenic To Humans.	8/2/2001	NR	Not Applicable
Bitertanol	55179-31-2	117801	Not Likely To Be Carcinogenic To Humans.	11/30/2005	NR	Not Applicable
Bixafen	581809-46-3	128400	Not Likely To Be Carcinogenic To Humans.	7/18/2018	NR	Not Applicable
Borax	1303-96-4	011102	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/24/1993	NR	Not Applicable
Boric acid	10043-35-3	011001	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/24/1993	NR	Not Applicable
Boron	7440-42-8	128945	Group E--Evidence Of Non-Carcinogenicity for Humans.	11/24/1993	NR	Not Applicable
Boron Sodium Oxide	12008-41-2	011107	Not Likely To Be Carcinogenic To Humans.	12/1/2015	NR	Not Applicable
Boron Sodium Oxide, Tetrahydrate	12280-03-4	011103	Not Likely To Be Carcinogenic To Humans.	12/1/2015	NR	Not Applicable

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Boscalid	188425-85-6	128008	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	11/14/2002	NR	Thyroid tumors in Wistar rats (M)(F)
Bromacil	314-40-9	012301	Group C--Possible Human Carcinogen.	1/13/1993	RfD Approach	Liver tumors in CD-1 mice (M); Thyroid tumors in CD (BR) rats (M)
Bromacil, lithium salt	53404-19-6	012302	Group C--Possible Human Carcinogen.	05/09/2012	RfD Approach	Liver tumors in CD-1 mice (M); Thyroid tumors in CD (BR) rats (M)
Bromoxynil	1689-84-5	035301	Group C--Possible Human Carcinogen.	3/12/1997	Q1* = 1.03 E-1 (3/4)	Liver tumors in CD-1 mice (M)(F)
Bromoxynil octanoate	1689-99-2	035302	Group C--Possible Human Carcinogen.	4/20/2011	Q1* = 0.103 (mg/kg/day)-1	Liver tumors in mice (M)
Bromuconazole	116255-48-2	120503	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/24/1995	NR	Not Applicable
Bronopol	52-51-7	216400	Group E--Evidence Of Non-Carcinogenicity for Humans.	6/12/1995	NR	Not Applicable
Buprofezin	69327-76-0	275100	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/15/2000	NR	Liver tumors in CD-1 mice (F)
Butachlor	23184-66-9	112301	Likely to Be Carcinogenic to Humans.	2/24/1999	NR	Kidney, Nasal, Thyroid tumors in Sprague-Dawley rats (M)(F); Stomach tumors in Sprague-Dawley rats (F)
Butafenacil	134605-64-4	122004	Not Likely To Be Carcinogenic To Humans.	7/11/2003	NR	Not Applicable
Butralin	33629-47-9	106501	There Are Insufficient Data To Characterize The Cancer Risk Of Butralin.	9/5/1996	NR	Not Applicable
Butylate	2008-41-5	041405	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/25/1992	NR	Not Applicable
Cacodylic acid	75-60-5	012501	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Result In Enhanced Cell Proliferation.	6/21/2006	NR	Urinary Bladder tumors in Fisher 344 rats (M)(F); Fibrosarcomas in multiple organs in B6C3F1 mice (F).; The mode of action for the development of bladder tumors in rats has been established and supports a nonlinear dose-response assessment.
Cadusafos	95465-99-9	128864	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/28/1992	NR	Not Applicable
Captafol	2939-80-2	081701	Group B--Probable Human Carcinogen.	5/19/1987	Q1* = 5.1 E-2 (2/3)	Kidney tumors in Sprague-Dawley rats (M)(F); Liver, Mammary tumors in Sprague-Dawley rats (F); Lymph, Vascular in CD-1 mice (M)(F); Harderian Gland tumors in CD-1 mice (M)
Captan	133-06-2	081301	Likely To Be Carcinogenic To Humans: At Prolonged, High-Level Exposures; Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause Cytotoxicity And Regenerative Cell Hyperplasia.	9/22/2004	NR	Intestinal tumors in CD-1 mice (M)(F); Established a cytotoxic and regenerative proliferation MOA for intestinal tumors in mice.
Carbaryl	63-25-2	056801	Likely To Be Carcinogenic To Humans.	2/12/2002	Q1* = 8.75 E-4 (3/4)	Vascular tumors in CD-1 (ICR)BR mice (M)
Carbendazim (MBC)	10605-21-7	128872	Group C--Possible Human Carcinogen.	4/7/1989	Q1* = 2.39 E-3 (3/4)	Liver tumors in CD-1 mice (M)(F), Swiss SPF (F)
Carbofuran	1563-66-2	090601	Not Likely To Be Carcinogenic To Humans.	6/17/1997	NR	Not Applicable
Carboxin	5234-68-4	090201	Not Likely To Be Carcinogenic To Humans.	6/5/2003	NR	Not Applicable
Carfentrazone-ethyl	128639-02-1	128712	Not Likely To Be Carcinogenic To Humans.	5/16/2001	NR	Not Applicable
Chlorantraniliprole	500008-45-7	090100	Not Likely To Be Carcinogenic To Humans.	3/4/2009	NR	Not Applicable
Chlordimeform	6164-98-3	059701	Group B--Probable Human Carcinogen.	12/20/1985	Q1* = 1.29 E-1 (3/4)	Vascular tumors in Tif:MAG:SPF mice (M)(F)
Chlorethoxyfos	54593-83-8	129006	Group D--Not Classifiable As To Human Carcinogenicity.	3/9/1995	NR	Not Applicable
Chlorfenapyr	122453-73-0	129093	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/18/2003	NR	Histiocytic Sarcomas, Liver tumors in Sprague Dawley rats (M)(F); Uterine tumors in Sprague Dawley rats (F); Testicular tumors in Sprague Dawley rats (M)
Chlorflurenol Methyl Ester	2536-31-4	098801	Not Likely To Be Carcinogenic To Humans.	7/10/2006	NR	Not Applicable
Chlorimuron-ethyl	90982-32-4	128901	Not Likely To Be Carcinogenic To Humans.	2/5/2009	NR	Not Applicable
Chlormequat chloride	999-81-5	018101	Not Likely To Be Carcinogenic To Humans.	6/12/2007	NR	Not Applicable
Chloroaniline, p-	106-47-8	017203	Group B--Probable Human Carcinogen.	4/27/1995	Q1* = 1.12 E-1 (3/4)	Adrenal tumors in Fisher 344 rats (M)(F); Spleen tumors in Fisher 344 rats (M); Liver, Spleen tumors in B6C3F1 mice (M)
Chloroneb	2675-77-6	027301	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	12/18/2003	NR	Not Applicable
Chloropicrin	76-06-2	081501	Not Likely To Be Carcinogenic To Humans.	6/30/2010	NR	Not Applicable
Chlorothalonil	1897-45-6	081901	Likely To Be Carcinogenic To Humans.	10/20/1997	MOE Approach	Forestomach tumors in CD-1 mice (M)(F), Fisher 344 rats (M)(F); Kidney tumors in CD-1 mice (M), Fisher 344 rats (M)(F), Osborne-Mendel rats (M)(F)
Chlorpropham	101-21-3	018301	Group E--Evidence Of Non-Carcinogenicity For Humans.	10/11/1994	NR	Not Applicable
Chlorpyrifos	2921-88-2	059101	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/23/1993	NR	Not Applicable

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Chlorpyrifos methyl	5598-13-0	059102	Not Likely To Be Carcinogenic To Humans.	5/17/1999	NR	Not Applicable
Chlorsulfuron	64902-72-3	118601	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/17/2002	NR	Not Applicable
Chlorthal-dimethyl (DCPA)	1861-32-1	078701	Group C--Possible Human Carcinogen.	2/10/1995	Q1* = 1.49 E-3 (3/4)	Liver tumors in Sprague-Dawley rats (F), CD-1 mice (F); Thyroid tumors in Sprague-Dawley rats (M)(F)
Clethodim	99129-21-2	121011	Not Likely To Be Carcinogenic To Humans.	9/28/2007	NR	Not Applicable
Clodinafop-propargyl	105512-06-9	125203	Suggestive Evidence Of Carcinogenic Potential.	2/8/2006	NR	Prostate tumors in Tif: RAIf (SPF) rats (M); Liver tumors in Tif:MAGf (SPF) mice (M)(F); Established a PPARα MOA for liver tumors in mice.
Clofencet (MON 21200)	82697-71-0	128726	Group C--Possible Human Carcinogen.	7/23/1996	RfD Approach	Histiocytic Sarcomas in CD-1 mice (F)
Clofentezine	74115-24-5	125501	Group C--Possible Human Carcinogen.	4/3/1990	Q1* = 3.76 E -2 (3/4)	Thyroid tumors in Sprague-Dawley rats (M)
Clomazone	81777-89-1	125401	Not Likely To Be Carcinogenic To Humans.	1/31/2001	NR	Not Applicable
Clopyralid	1702-17-6	117403	Not Likely To Be Carcinogenic To Humans.	12/20/1999	NR	Not Applicable
Cloquintocet-mexyl	99607-70-2	700099	Not Likely To Be Carcinogenic To Humans.	8/31/1999	NR	Not Applicable
Cloransulam-methyl	147150-35-4	129116	Group E--Evidence Of Non-Carcinogenicity for Humans.	9/30/1997	NR	Not Applicable
Clothianidin	210880-92-5	044309	Not Likely To Be Carcinogenic To Humans.	1/6/2003	NR	Not Applicable
CMNP (Pyrazachlor)	6814-58-0	207100	Likely To Be Carcinogenic To Humans.	9/20/2011	Q1* = 2.36 X 10 E -2	Liver tumors in CD (BR) rats (M); Lung, Kidney tumors in CD-1 mice (M)(F)
Cocamide Diethanolamine	68603-42-9	224600	Likely to Be Carcinogenic to Humans.	10/17/2001	Q1* = 4.01 E-1 (3/4)	Liver tumors in B6C3F1 mice (M)(F); Kidney tumors in B6C3F1 mice (M)
Copper Compounds	20427-59-2	023401	Group D--Not Classifiable As To Human Carcinogenicity.	6/13/2006	NR	Not Applicable
Coumaphos	56-72-4	036501	Not Likely To Be Carcinogenic To Humans.	6/25/1999	NR	Not Applicable
Cresol, p-Chloro-m-	59-50-7	064206	Group D--Not Classifiable As To Human Carcinogenicity.	11/28/1995	NR	Not Applicable
Cryolite	15096-52-3	075101	Group D--Not Classifiable As To Human Carcinogenicity.	12/22/1995	NR	Not Applicable
Cumyluron	99485-76-4	027902	Suggestive Evidence Of Carcinogenic Potential.	6/11/2008	NR	Liver tumors in B6C3F1 mice (M)(F)
Cyanazine	21725-46-2	100101	Group C--Possible Human Carcinogen.	7/30/1991	Q1* = 1.01 E-0 (2/3)	Mammary tumors in Sprague-Dawely rats (F)
Cyantraniliprole	736994-63-1	090098	Not Likely To Be Carcinogenic To Humans.	3/7/2013	NR	Not Applicable
Cyazofamid	120116-88-3	085651	Not Likely To Be Carcinogenic To Humans.	6/3/2009	NR	Not Applicable
Cyclanilide	113136-77-9	026201	Not Likely To Be Carcinogenic To Humans.	4/9/1997	NR	Not Applicable
Cyclaniliprole	1031756-98-5	026202	Not Likely To Be Carcinogenic To Humans.	4/25/2017	NR	Not Applicable
Cycloate	1134-23-2	041301	Not Likely To Be Carcinogenic To Humans.	9/25/2003	NR	Not Applicable
Cyflufenamid	180409-60-3	555550	Suggestive Evidence Of Carcinogenic Potential.	12/2/2014	NR	Liver tumors in CD-1 mice (M); Established MOA for thyroid tumors in male rats.
Cyflumetofen	400882-07-7	138831	Suggestive Evidence Of Carcinogenic Potential.	12/30/2013	NR	Thyroid tumors in Fisher 344 rats (M)
Cyfluthrin	68359-37-5	128831	Not Likely To Be Carcinogenic To Humans.	5/21/2002	NR	Not Applicable
Cyhalofop-butyl	122008-85-9	082583	Not Likely To Be Carcinogenic To Humans.	12/20/2007	NR	Established a PPARα MOA for liver tumors in mice.
Cyhalothrin	68085-85-8	128867	Group D--Not Classifiable As To Human Carcinogenicity.	8/25/1993	NR	Not Applicable
Cyhexatin	13121-70-5	101601	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	4/7/2005	NR	Not Applicable
Cymoxanil	57966-95-7	129106	Not Likely To Be Carcinogenic To Humans.	1/2/2003	NR	Not Applicable
Cypermethrin	52315-07-8	109702	Group C--Possible Human Carcinogen.	9/27/1988	NR	Lung tumors in Alderly Park SPF Swiss mice (F)
Cyphenothrin	39515-40-7	129013	Not Likely To Be Carcinogenic To Humans.	12/16/2016	NR	Not Applicable
Cyproconazole	94361-06-5	128993	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause A Mitogenic Response In The Liver.	12/4/2007	NR	Liver tumors in CD-1 mice (M)(F); Established a non-genotoxic, mitogenic MOA for liver tumors in mice.
Cyprodinil	121552-61-2	288202	Not Likely To Be Carcinogenic To Humans.	1/14/1998	NR	Not Applicable
Cyprosulfamide	221667-31-8	877400	Not Likely To Be Carcinogenic To Humans.	2/29/2008	NR	Kidney tumors in Wistar rats (M); Established a cytotoxicity and regenerative proliferation MOA for urinary bladder tumors in rats.
Cyromazine	66215-27-8	121301	Group E--Evidence Of Non-Carcinogenicity For Humans.	1/6/1995	NR	Not Applicable
Daminozide	1596-84-5	035101	Group B--Probable Human Carcinogen.	7/26/1991	Q1* = 8.7 E-3 (2/3)	Cecum, Kidney, Liver, Lung, Nasal, Pancreatic, Uterine, Vascular tumors in Fisher 344 rats (M)(F), B6C3F1 mice (M)(F), Swiss mice (M)(F), C57BL mice (F), CD-1 mice (M)(F), Syrian Golden hamster (M)
Dantochlor (BCDMH)	118-52-5	028501	Not Likely To Be Carcinogenic To Humans.	8/14/2000	NR	Not Applicable
Dazomet	533-74-4	035602	Group D--Not Classifiable As To Human Carcinogenicity.	12/7/1993	NR	Not Applicable
DEET	134-62-3	080301	Group D--Not Classifiable As To Human Carcinogenicity.	1/4/1996	NR	Not Applicable

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Deltamethrin	52918-63-5	097805	Not Likely To Be Carcinogenic To Humans.	9/9/2003	NR	Not Applicable
Demiditraz	944263-65-4	577501	Not Required (Non-Food).	4/11/2013	NR	Not Applicable
Desmedipham	13684-56-5	104801	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/20/1995	NR	Not Applicable
Diazinon	333-41-5	057801	Not Likely To Be Carcinogenic To Humans.	6/17/1997	NR	Not Applicable
Dicamba	1918-00-9	029801	Not Likely To Be Carcinogenic To Humans.	8/16/2005	NR	Not Applicable
Dicamba BAPMA Salt	104040-79-1	100094	Group D--Not Classifiable As To Human Carcinogenicity.	3/29/2016	NR	Not Applicable
Dichlobenil	1194-65-6	027401	Group C--Possible Human Carcinogen.	7/18/1995	RfD Approach	Liver tumors in Fisher 344 rats (M)(F), Syrian Golden hamsters (M)
Dichlormid	37764-25-3	900497	Not Likely To Be Carcinogenic To Humans.	11/15/2005	NR	Not Applicable
Dichlorobenzamide, 2,6-	2008-58-4	027402	Group D--Not Classifiable As To Human Carcinogenicity.	11/28/1995	NR	Not Applicable
Dichlorvos	62-73-7	084001	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/1/2000	NR	Mononuclear Cell Leukemia in Fisher 344 rats (M); Forestomach tumors in B63F1 mice (F)
Diclofop-methyl	51338-27-3	110902	Likely To Be Carcinogenic To Humans.	5/24/2000	Q1* = 7.36 E-2 (3/4)	Thyroid tumors in Wistar rats (F); Liver tumors in Wistar rats (M)(F); Testicular tumors in Wistar rats (M); Liver tumors in B6C3F1 mice (M)(F)
Dicloran	99-30-9	031301	Suggestive Evidence Of Carcinogenic Potential.	9/5/2006	NR	Testicular tumors in Wistar rats (M)
Diclosulam	145701-21-9	129122	Not Likely To Be Carcinogenic To Humans.	11/9/1999	NR	Not Applicable
Dicofol	115-32-2	010501	Group C--Possible Human Carcinogen.	6/24/1992	RfD Approach	Liver tumors in B6C3F1 mice (M)
Dicrotophos	141-66-2	035201	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	10/18/1999	NR	Thyroid tumors in C57BL/10J CD-1 Alpk mice (M)(F)
Didecyl dimethyl ammonium chloride (DDAC)	7173-51-5	069149	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/11/2000	NR	Not Applicable
Diethofencarb	87130-20-9	112102	Suggestive Evidence Of Carcinogenic Potential.	8/27/2015	NR	Thyroid tumors in CD(SD)BR rats (M)(F); MOA not supported.
Difenoconazole	119446-68-3	128847	Suggestive Evidence Of Carcinogenic Potential.	3/1/2007	NR	Liver tumors in CD-1 mice (M)(F)
Difenzoquat methyl sulfate	43222-48-6	106401	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/24/1994	NR	Not Applicable
Diflubenzuron	35367-38-5	108201	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/27/1995	NR	Not Applicable
Diflufenzopyr	109293-97-2	005108	Not Likely To Be Carcinogenic To Humans.	3/7/2017	NR	Not Applicable
Diflufenzopyr Sodiium	109293-98-3	005107	Not Likely To Be Carcinogenic To Humans.	3/7/2017	NR	Not Applicable
Dimethenamid	87674-68-8	129051	Group C--Possible Human Carcinogen.	9/3/2014	RfD Approach	Liver tumors in Sprague-Dawley rats (M)
Dimethenamid-P	163515-14-8	120051	Group C--Possible Human Carcinogen.	9/3/2014	RfD Approach	Liver tumors in Sprague-Dawley rats (M)
Dimethipin	55290-64-7	118901	Group C--Possible Human Carcinogen.	1/5/1990	NR	Lung tumors in CD-1 mice (M)
Dimethoate	60-51-5	035001	Group C--Possible Human Carcinogen.	3/26/2002	RfD Approach	Vascular tumors in B6C3F1 mice (M); Spleen, Skin, Lymph tumors in Wistar rats (M)
Dimethomorph	110488-70-5	268800	Not Likely To Be Carcinogenic To Humans.	5/13/1998	NR	Not Applicable
Dimethoxane	828-00-2	001001	Suggestive Evidence Of Carcinogenic Potential.	12/21/2000	NR	Not Applicable
Dimethyl Disulfide, DMDS	624-92-0	029088	Not Required based on the proposed use pattern.	12/28/2018	NR	Not Applicable
Dimethyl ether	115-10-6	900382	Group D--Not Classifiable As To Human Carcinogenicity.	1/12/1994	NR	Not Applicable
Dimethylhydantoin	16079-88-2	006315	Not Likely to Be Carcinogenic to Humans.	8/28/2000	NR	Not Applicable
Dinocap	39300-45-3	036001	Group E--Evidence Of Non-Carcinogenicity For Humans.	6/22/1994	NR	Not Applicable
Dinoseb	88-85-7	037505	Group C--Possible Human Carcinogen.	6/19/1986	NR	Liver tumors in CD-1 mice (F)
Dinotefuran	165252-70-0	044312	Not Likely To Be Carcinogenic To Humans.	3/5/2004	NR	Not Applicable
Diphenylamine	122-39-4	038501	Not Likely To Be Carcinogenic To Humans.	4/1/1997	NR	Not Applicable
Diquat dibromide	85-00-7	032201	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/12/1994	NR	Not Applicable
Disodium methanearsonate	144-21-8	013802	Not Likely To Be Carcinogenic To Humans.	7/26/2000	NR	Not Applicable
Disulfoton	298-04-4	032501	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/21/1997	NR	Not Applicable
Dithianon	3347-22-6	099201	Suggestive Evidence Of Carcinogenic Potential.	2/23/2006	NR	Kidney tumors in Sprague Dawley rats (F)
Dithiopyr (MON 7200)	97886-45-8	128994	Group E--Evidence Of Non-Carcinogenicity for Humans.	5/29/1997	NR	Not Applicable
Diuron	330-54-1	035505	Known/Likely.	5/8/1997	Q1* = 1.91 E-2 (3/4)	Kidney tumors in Wistar rats (M); Urinary Bladder tumors in Wistar rats (M)(F); Mammary tumors in NMRI mice (F)
Dodine	2439-10-3	044301	Not Likely To Be Carcinogenic To Humans.	1/24/2008	NR	Not Applicable
Ecolyst	274671-61-3	069089	Not Likely To Be Carcinogenic To Humans.	10/19/1999	NR	Not Applicable

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Emamectin Benzoate (Deoxy Avermectin)	137512-74-4	122806	Not Likely To Be Carcinogenic To Humans.	3/19/1998	NR	Not Applicable
Endosulfan	115-29-7	079401	Not Likely To Be Carcinogenic To Humans.	1/31/2000	NR	Not Applicable
Endothall	145-73-3	038901	Not Likely To Be Carcinogenic To Humans.	10/23/2008	NR	Not Applicable
Endothall Amine Salt	66330-88-9	038905	Not Likely To Be Carcinogenic To Humans.	12/09/2015	NR	Not Applicable
Endothall dipotassium salt	2164-07-0	038904	Not Likely To Be Carcinogenic To Humans.	12/09/2015	NR	Not Applicable
Epoxiconazole	106325-08-0, 133855-98-8	123909	Likely To Be Carcinogenic To Humans.	1/24/2001	Q1* = 3.04E-2 (3/4)	Adrenal, Liver tumors in Wistar rats (M)(F); Ovarian tumors in Wistar rats (F); Liver tumors in C57BL/6N CrlBr mice (M)(F)
Esbiothrin	28434-00-6	004007	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	12/2/2003	NR	Kidney tumors in Sprague-Dawley CD-SD(BR) rats (M)
Esfenvalerate	66230-04-4	109303	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/1/1996	NR	Not Applicable
Ethaboxam	162650-77-3	090205	Suggestive Evidence Of Carcinogenic Potential.	3/23/2006	NR	Testicular tumors in Sprague Dawley rats (M)
Ethalfluralin	55283-68-6	113101	Group C--Possible Human Carcinogen.	9/14/1994	Q1* = 8.9 E-2 (3/4)	Kidney, Mammary, Urinary Bladder tumors in Fischer 344 rats (M)(F)
Ethephon	16672-87-0	099801	Group D--Not Classifiable As To Human Carcinogenicity.	8/15/1994	NR	Not Applicable
Ethion	563-12-2	058401	Group E--Evidence Of Non-Carcinogenicity For Humans.	1/26/1994	NR	Not Applicable
Ethiprole	181587-01-9	005550	Suggestive Evidence Of Carcinogenic Potential.	10/28/2010	NR	Liver tumors in C57BL/6J (F); Thyroid tumors in Wistar rats (M)
Ethofumesate	26225-79-6	110601	Group D--Not Classifiable As To Human Carcinogenicity.	2/24/1994	NR	Not Applicable
Ethoprop	13194-48-4	041101	Likely To Be Carcinogenic To Humans.	10/7/1998	Q1* = 2.81 E-2 (3/4)	Adrenal tumors in Sprague-Dawley rats (M); Thyroid tumors in Fischer 344 rats (M), Sprague-Dawley rats (M)
Ethoxyquin	91-53-2	055501	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	9/11/2019	RfD Approach	Not Applicable
Ethyl dipropylthiocarbamate (EPTC)	759-94-4	041401	Not Likely To Be Carcinogenic To Humans.	8/31/1999	NR	Not Applicable
Ethylene thiourea (ETU)	96-45-7	600016	Group B--Probable Human Carcinogen.	7/7/1999	Q1* = 6.01 E-2 (3/4)	Thyroid tumors in Fischer 344 rats (M)(F); Pituitary, Liver tumors in B6C3F1 mice (M)(F)
Etofenprox	80844-07-1	128965	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Alter Rat Thyroid Hormone Homeostasis.	2/8/2006	NR	Thyroid tumors in Sprague-Dawley rats (M)(F); Established a hormone disruption MOA for thyroid tumors in rats.
Etoxazole	153233-91-1	107091	Not Likely To Be Carcinogenic To Humans.	8/7/2003	NR	Not Applicable
Famoxadone	131807-57-3	113202	Not Likely To Be Carcinogenic To Humans.	4/16/2003	NR	Not Applicable
Fenamidone	161326-34-7	046679	Not Likely To Be Carcinogenic To Humans.	7/12/2002	NR	Not Applicable
Fenamiphos	22224-92-6	100601	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/23/1993	NR	Not Applicable
Fenarimol	60168-88-9	206600	Not Likely To Be Carcinogenic To Humans.	9/5/2001	NR	Not Applicable
Fenazaquin	120928-09-8	044501	Not Likely To Be Carcinogenic To Humans.	5/15/2007	NR	Not Applicable
Fenbuconazole	114369-43-6	129011	Group C--Possible Human Carcinogen.	4/15/1996	Q1* = 3.59 E-3 (3/4)	Thyroid tumors in Sprague-Dawley rats (M); Liver tumors in CD-1 mice (M)(F)
Fenbutatin-oxide	13356-08-6	104601	Group E--Evidence Of Non-Carcinogenicity For Humans.	3/2/1993	NR	Not Applicable
Fenhexamide	126833-17-8	090209	Not Likely To Be Carcinogenic To Humans.	3/4/1999	NR	Not Applicable
Fenitrothion	122-14-5	105901	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/13/1993	NR	Not Applicable
Fenoxaprop-ethyl	9015-56-9	128701	Suggestive Evidence Of Carcinogenic Potential.	7/29/2013	RfD Approach	Liver tumors in NMRI mice (M)
Fenoxycarb	72490-01-8	125301	Likely To Be Carcinogenic To Humans.	12/22/1997	Q1* = 7.00 E-2 (3/4)	Harderian Gland, Lung tumors in CD-1 mice (M)
Fenpicoxamid (XDE-777)	517875-34-2	082566	Suggestive Evidence Of Carcinogenic Potential.	8/24/2017	RfD Approach	Liver tumors in Crl:CD-1 (ICR) mice (M)
Fenpropathrin	39515-41-8	127901	Not Likely To Be Carcinogenic To Humans.	12/22/2003	NR	Not Applicable
Fenpropidin	67306-00-7	012305	Suggestive Evidence Of Carcinogenic Potential.	6/9/2009	NR	Pancreatic tumors in rats Sprague-Dawley rats (M)
Fenpropimorph	67564-91-4	121402	Not Likely To Be Carcinogenic To Humans.	10/19/2005	NR	Not Applicable
Fenpyrazamine	473798-59-3	090109	Not Likely To Be Carcinogenic To Humans.	10/31/2012	NR	Not Applicable
Fenpyroximate	134098-61-6	129131	Not Likely To Be Carcinogenic To Humans.	2/19/1997	NR	Not Applicable
Fenthion	55-38-9	053301	Group E--Evidence Of Non-Carcinogenicity For Humans.	3/11/1996	NR	Not Applicable
Fenvalerate	51630-58-1	109301	Group E--Evidence Of Non-Carcinogenicity For Humans.	2/10/2003	NR	Not Applicable
Ferbam	14484--64--1	034801	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential; Based On Ziram Studies.	4/6/2000	NR	Vascular tumors in CD(SD)BR rats (M); Preputial Gland tumors in Fisher 344 rats (M); Based on Ziram studies.

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Fipronil	120068-37-3	129121	Group C--Possible Human Carcinogen.	7/18/1995	RfD Approach	Thyroid tumors in CD rats (M)(F)
Flazasulfuron	104040-78-0	119011	Not Likely To Be Carcinogenic To Humans.	11/16/2005	NR	Not Applicable
Flonicamid	158062-67-0	128016	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	2/24/2005	NR	Nasal Duct tumors in Wistar rats (F); Lung tumors in CD-1 mice (M)(F); Established a mitogenic MOA for mouse lung tumors in mice.
Florasulam	145701-23-1	129108	Not Likely To Be Carcinogenic To Humans.	5/31/2007	NR	Not Applicable
Florpyrauxifen-benzyl	1390661-72-9	030093	Not Likely To Be Carcinogenic To Humans.	6/1/2017	NR	Not Applicable
Fluazifop	69806-50-4	122805	Not Likely To Be Carcinogenic To Humans.	6/27/2019	NR	Not Applicable
Fluazifop-P-Butyl	79241-46-6	122809	Not Likely To Be Carcinogenic To Humans.	6/27/2019	NR	Not Applicable
Fluazinam	79622-59-6	129098	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/29/2001	NR	Liver tumors in CD-1 mice (M); Thyroid tumors in Sprague-Dawley (M)
Flubendiamide	272451-65-7	027602	Not Likely To Be Carcinogenic To Humans.	4/3/2008	NR	Not Applicable
Flucarbazone-sodium	181274-17-9	114009	Not Likely To Be Carcinogenic To Humans.	7/19/2000	NR	Not Applicable
Fludioxonil	131341-86-1	071503	Group D--Not Classifiable As To Human Carcinogenicity.	9/19/1996	NR	Not Applicable
Fluensulfone	318290-98-1	050410	Suggestive Evidence Of Carcinogenic Potential.	5/7/2014	RfD Approach	Lung tumors in CD-1 mice (F); MOA not supported.
Flufenacet (Thiaflumide)	142459-58-3	121903	Not Likely To Be Carcinogenic To Humans.	7/16/1997	NR	Not Applicable
Flufenoxuron	101463-69-8	108203	Not Likely To Be Carcinogenic To Humans.	8/15/2006	NR	Not Applicable
Flufenpyr-ethyl	188489-07-8	108853	Not Likely To Be Carcinogenic To Humans.	6/8/2003	NR	Not Applicable
Fluindapyr	1383809-87-7	138008	Not Likely To Be Carcinogenic To Humans.	9/3/2019	NR	Not Applicable
Flumethrin	69770-45-2	036007	Not Likely To Be Carcinogenic To Humans.	3/6/2012	NR	Not Applicable
Flumetralin	62924-70-3	123001	Not Likely To Be Carcinogenic To Humans.	6/21/2007	NR	Not Applicable
Flumetsulam (XRD-498)	98967-40-9	129016	Group E--Evidence Of Non-Carcinogenicity For Humans.	3/24/1993	NR	Not Applicable
Flumiclorac pentyl	87546-18-7	128724	Group E--Evidence Of Non-Carcinogenicity For Humans.	9/7/1994	NR	Not Applicable
Flumioxazin	141490-50-8	129034	Not Likely To Be Carcinogenic To Humans.	2/22/2001	NR	Not Applicable
Fluometuron	2164-17-2	035503	Group C--Possible Human Carcinogen.	8/28/1996	Q1* = 1.80 E-2 (3/4)	Lung tumors in CD-1 mice (M); Lymph tumors in CD-1 mice (F)
Fluopicolide	239110-15-7	027412	Not Likely To Be Carcinogenic To Humans.	12/12/2006	RfD Approach	Liver tumors in C57Bl/6 mice (M)(F); Established a mitogenic MOA for liver tumors in mice.
Fluopyram	658066-35-4	080302	Not Likely To Be Carcinogenic To Humans.	5/8/2014	NR	Thyroid tumors in C57BL/6J mice (M); Liver tumors in Wistar rats (F); Established a non-genotoxic MOA for liver tumors in rats and thyroid tumors in mice.
Fluoxastrobin	361377-29-9	028869	Not Likely To Be Carcinogenic To Humans.	1/24/2005	NR	Not Applicable
Flupyradifurone	951659-40-8	122304	Not Likely To Be Carcinogenic To Humans.	8/5/2014	NR	Not Applicable
Fluridone	59756-60-4	112900	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/1/1985	NR	Not Applicable
Fluroxypyr	81406-37-3	128968	Not Likely To Be Carcinogenic To Humans.	6/26/2003	NR	Not Applicable
Fluroxypyr acid (see also PC Code 128968)	69377-81-7	128959	Not Likely To Be Carcinogenic To Humans.	6/26/2003	NR	Not Applicable
Flurprimidol	56425-91-3	125701	Not Likely To Be Carcinogenic To Humans.	9/29/2005	NR	Not Applicable
Fluthiacet methyl	117337-19-6	108803	Likely To Be Carcinogenic To Humans.	11/20/1998	Q1* = 2.07 E-1 (3/4)	Liver tumors in CD-1 mice (M)(F); Pancreatic tumors in Sprague-Dawley rats (M)
Flutianil	958647-10-4	014018	Not Likely To Be Carcinogenic To Humans.	11/1/2017	NR	Not Applicable
Flutolanil	66332-96-5	128975	Group E--Evidence Of Non-Carcinogenicity For Humans.	6/9/1994	NR	Not Applicable
Flutriafol	76674-21-0	128940	Not Likely To Be Carcinogenic To Humans.	6/1/2009	NR	Not Applicable
Fluxapyroxad	907204-31-3	138009	Not Likely To Be Carcinogenic To Humans: Below A Defined Dose Range.	6/9/2011	RfD Approach	Liver tumors in Wistar rats (M)(F); Thyroid tumors in Wistar rats (M); Established a mitogenic MOA for liver tumors and non-genotoxic mode of action for thyroid tumors in rats.
Folpet	133-07-3	081601	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause An Irritation Response In The Mucosal Epithelium.	10/13/2010	RfD Approach	Intestinal tumors in CD-1 mice (M)(F), B6C3F1 mice (M)(F); Forestomach tumors in CD-1 mice (M)(F), B6C3F1 mice (F); Skin tumors in B6C3F1 mice (M); Established non-genotoxic MOA involving cytotoxicity and regenerative cell hyperplasia that exhibits a clear dose threshold for both small intestine tumors and forestomach tumors in mice.
Fomesafen	108731-70-0	123802	Not Likely To Be Carcinogenic To Humans.	11/3/2005	NR	Liver tumors in CD-1 mice (M)(F); Established a PPARα MOA for liver tumors in mice.
Fonofos	944-22-9	041701	Group E--Evidence Of Non-Carcinogenicity for Humans.	11/10/1993	NR	Not Applicable
Forchlorfenuron	68157-60-8	128819	Not Likely To Be Carcinogenic To Humans.	3/11/2008	NR	Not Applicable
Formasulfuron	173159-57-4	122020	Not Likely To Be Carcinogenic To Humans.	9/19/2001	NR	Not Applicable

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Formetanate hydrochloride	23422-53-9	097301	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/20/1996	NR	Not Applicable
Fosetyl-Al	39148-24-8	123301	Not Likely To Be Carcinogenic To Humans.	4/22/1999	NR	Not Applicable
Fosthiazate	98886-44-3	129022	Not Likely To Be Carcinogenic To Humans.	9/15/2003	NR	Not Applicable
Furfural	98-01-1	043301	Likely To Be Carcinogenic To Humans.	2/6/2014	Q1* = 3.49 X 10 E-2	Liver tumors in B6C3F1 mice (M)(F), Fisher 344 rats (M)
Furfuryl Alcohol	98-00-0	643300	Likely to Be Carcinogenic to Humans.	2/6/2014	Q1* = 1.31 X 10 E-1	Kidney tumors in B6C3F1 mice (M); Nasal tumors in Fisher 344 rats (M)
Furilazole (MON 13900)	121776-33-8	911596	Likely To Be Carcinogenic To Humans.	10/15/1999	Q1* = 2.74 E-2 (3/4)	Liver, Lung, Stomach, Testicular tumors in Sprague-Dawley rats (M)(F), CD-1 mice (M)(F)
Furmecyclox	60568-05-0	122601	Group B--Probable Human Carcinogen.	7/3/1985	Q1* = 2.98 E-2 (2/3)	Liver, Urothelial tumors in Sprague-Dawley rats (M)(F)
G77 (Urea)	1373256-33-7	128662	Not Required (Non-Food).	5/23/2018	NR	Not Applicable
Gamma Cyhalothrin	76703-62-3	128807	Not Likely To Be Carcinogenic To Humans.	3/1/2004	NR	Not Applicable
Gardona	22248-79-9	083702	Group C--Possible Human Carcinogen.	12/21/2016	Q1* = 1.83 x 10-3 (mg/kg/day)-1	Liver tumors in B6C3F1 mice (F); Thyroid C-cell, Adrenal Gland tumors in Sprague-Dawley rats (M)
Gentamicin Sulfate	1405-41-0	006325	Not Likely To Be Carcinogenic To Humans.	3/21/2007	NR	Not Applicable
Glufosinate-ammonium	77182-82-2	128850	Not Likely To Be Carcinogenic To Humans.	5/17/1999	NR	Not Applicable
Glutaraldehyde	111-30-8	043901	Not Likely to Be Carcinogenic to Humans.	5/18/2006	NR	Not Applicable
Glyphosate	1071-83-6	417300	Not Likely To Be Carcinogenic To Humans.	12/12/2017	NR	Not Applicable
Halauxifen-methyl	943831-98-9	117501	Not Likely To Be Carcinogenic To Humans.	3/21/2016	NR	Not Applicable
Halosulfuron methyl (MON 1200)	100784-20-1	128721	Not Likely To Be Carcinogenic To Humans.	2/26/1998	NR	Not Applicable
Haloxyfop-methyl	69806-40-2	125201	Group B--Probable Human Carcinogen.	9/18/1989	Q1* = 7.39 E+0 (2/3)	Liver tumors in B6C3F1 mice (M)(F)
Hexaconazole	79983-71-4	128925	Group C--Possible Human Carcinogen.	1/21/1999	Q1* = 1.6 E-2 (3/4)	Testicular tumors in Wistar (Alpk:APfSD) rats (M)
Hexavalent Chromium (CrVI)	18540-29-9	021101; 068302	Likely to Be Carcinogenic to Humans.	7/1/2009	Q1* = 7.91 E-1 (3/4)	Oral Mucosa, Tongue tumors in Fisher 344 rats (M)(F); Intestinal (Duodenum, Jejunum, and Ileum) tumors in B6C3F1 mice (M)(F); Established a mutagenic MOA.
Hexazinone	51235-04-2	107201	Group D--Not Classifiable As To Human Carcinogenicity.	7/27/1994	NR	Not Applicable
Hexythiazox	78587-05-0	128849	Likely To Be Carcinogenic To Humans.	9/2/2009	RfD Approach	Liver tumors in B6C3F1 mice (F); Mammary tumors in Fisher 344 rats (M)
HOE107892	135590-91-9	811800	Not Likely To Be Carcinogenic To Humans.	11/24/1998	NR	Not Applicable
Hydramethylnon	67485-29-4	118401	Group C--Possible Human Carcinogen.	3/28/1991	RfD Approach	Lung tumors in CD-1 mice (F)
Hydrogen cyanamide	420-04-2	014002	Group C--Possible Human Carcinogen.	9/15/1993	Q1* = 6.64 E-2 (3/4)	Ovarian tumors in CD-1 (ICR)BR mice (F)
Hydrogen Cyanide		045801	Classification Not Available.	9/18/2018	NR	Not Applicable
Hydroprene	41096-46-2	486300	Group D--Not Classifiable As To Human Carcinogenicity.	6/8/1995	NR	Not Applicable
Hymexazol	10004-44-1	129107	Not Likely To Be Carcinogenic To Humans.	12/3/2015	NR	Not Applicable
Imazalil	35554-44-0	111901	Likely To Be Carcinogenic To Humans.	12/7/1999	Q1* = 6.11 E-2 (3/4)	Liver, Thyroid tumors in Wistar rats (M); Liver tumors in Swiss Albino mice (M); Data were insufficient to definitively support the proposed MOA.
Imazalil sulfate	58594-72-2	111902	Likely To Be Carcinogenic To Humans.	7/5/2018	Q1* = 6.1 x 10-2 (mg/kg/day)-1	Liver tumors in Swiss Albino mice (M); Liver, Thyroid Follicular Cell tumors in Wistar rats (M); Data were insufficient to definitively support the proposed MOA.
Imazamethabenz	81405-85-8	128842	Group D--Not Classifiable As To Human Carcinogenicity.	6/11/1987	NR	Not Applicable
Imazamox	114311-32-9	129171	Not Likely To Be Carcinogenic To Humans.	2/27/1997	NR	Not Applicable
Imazapic	81334-60-3	129041	Group E--Evidence Of Non-Carcinogenicity For Humans.	9/27/1995	NR	Not Applicable
Imazapyr	81334-34-1	128821	Group E--Evidence Of Non-Carcinogenicity For Humans.	10/5/1995	NR	Not Applicable
Imazaquin Acid	81335-37-7	128848	Not Likely To Be Carcinogenic To Humans.	10/31/2005	NR	Not Applicable
Imazethapyr	81335-77-5	128922	Not Likely To Be Carcinogenic To Humans.	1/31/2002	NR	Not Applicable
Imazosulfuron	122548-33-8	118602	Not Likely To Be Carcinogenic To Humans.	3/13/2009	NR	Not Applicable
Imidacloprid	105827-78-9	129099	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/10/1993	NR	Not Applicable
Imiprothrin	72963-72-5	004006	Not Required (Non-Food).	8/31/2016	NR	Not Applicable
Indaziflam	950782-86-2	080818	Not Likely To Be Carcinogenic To Humans.	4/22/2010	NR	Not Applicable
Indoxacarb	173584-44-6	067710	Not Likely To Be Carcinogenic To Humans.	7/17/2000	NR	Not Applicable
Iodomethane	74-88-4	000011	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Alter Rat Thyroid Hormone Homeostasis.	11/10/2005	RfD Approach	Thyroid tumors in Fischer 344 rats (M), B6C3F1 mice (M); Established a hormonal MOA for thyroid tumors in rats.

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Iodosulfuran	144550-36-7	122021	Not Likely To Be Carcinogenic To Humans.	1/5/2004	NR	Not Applicable
Ipoconazole	125225-28-7	125618	Not Likely To Be Carcinogenic To Humans.	5/28/2008	NR	Not Applicable
Iprodione	36734-19-7	109801	Likely To Be Carcinogenic To Humans.	2/26/1998	Q1* = 4.39 E-2 (3/4)	Liver tumors in CD-1 mice (M)(F); Ovarian tumors in CD-1 mice (F); Testicular tumors in CD(SD)BR rats (M)
Iprovalicarb	140923-17-7	098359	Likely To Be Carcinogenic To Humans.	4/11/2002	Q1* = 4.47E-4 (3/4)	Bone, Urinary Bladder, Thyroid tumors in Wistar (Hsd/WIN:WU) rats (M)(F); Uterine tumors in Wistar (Hsd/WIN:WU) rats (F)
Isofenphos	25311-71-1	109401	Group E--Evidence Of Non-Carcinogenicity For Humans.	1/13/1998	NR	Not Applicable
Isofetamid	875915-78-9	270000	Not Likely To Be Carcinogenic To Humans.	9/24/2014	NR	Not Applicable
Isophorone	78-59-1	047401	Group C--Possible Human Carcinogen.	9/2/1999	Q1* = 6.08 E-4 (3/4)	Preputial Gland tumors in Fisher 344 rats (M)
Isopyrazam	881685-58-1	129222	Likely To Be Carcinogenic To Humans.	2/2/2011	Q1* = 6.29 E-3 (3/4)	Liver, Uterine tumors in Wistar rats (F); Thyroid tumors in Wistar rats (M)
Isotianil		129130	Not Likely To Be Carcinogenic To Humans.	8/7/2019	NR	Not Applicable
Isoxaben	82558-50-7	125851	Suggestive Evidence Of Carcinogenic Potential.	10/7/2008	NR	Liver tumors in B6C3F1 mice (M)(F)
Isoxadifen-ethyl	163520-33-0	823000	Not Likely To Be Carcinogenic To Humans.	1/29/2001	NR	Not Applicable
Isoxaflutole	141112-29-0	123000	Likely To Be Carcinogenic To Humans.	9/30/1997	Q1* = 1.14 E-2 (3/4)	Liver tumors in CD-1 mice (M)(F), CD(SD) BR VAF/Plus rats (M)(F); Thyroid tumors in CD(SD) BR VAF/Plus rats (M)
Kasugamycin	6980-18-3	230001	Not Likely To Be Carcinogenic To Humans.	8/17/2005	NR	Not Applicable
Kathon 886	55965-84-9	107106	Group D--Not Classifiable As To Human Carcinogenicity.	5/18/1995	MOE Approach	Not Applicable
KBR 3023	119515-38-7	070705	Not Likely To Be Carcinogenic To Humans.	6/9/1999	NR	Not Applicable
Kresoxim-methyl	143390-89-0	129111	Likely To Be Carcinogenic To Humans.	8/19/1999	Q1* = 2.90 E-3 (3/4)	Liver tumors in Wistar rats (M)(F)
Lactofen	77501-63-4	128888	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	10/17/2006	MOE approach	Liver tumors in CD-1 mice (M)(F), Sprague-Dawley rats (M)(F); Established a PPARα MOA for liver tumors.
Lambda cyhalothrin	91465-08-6	128897	Group D--Not Classifiable As To Human Carcinogenicity.	9/12/2002	NR	Not Applicable
Lindane	58-89-9	009001	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	11/29/2001	NR	Lung tumors in Agouti mice (F), CD-1 mice (F), Pseudoagouti mice (F)
Linuron	330-55-2	035506	Group C--Possible Human Carcinogen.	11/20/2001	NR	Liver tumors in CD-1 mice (M)(F); Testicular tumors in CD rats (M)
Malathion	121-75-5	057701	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	4/28/2000	NR	Liver tumors in B6C3F1 mice (M)(F); Liver, Oral Palate, Nasal tumors in Fisher 344 rats (M)(F)
Maleic hydrazide	123-33-1	051501	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/10/1993	NR	Not Applicable
Mancozeb	8018-01-7	014504	Group B--Probable Human Carcinogen.	7/7/1999	Q1* = 6.01 E-2 (3/4) Based on ETU.	Thyroid tumors in CD(BR) rats (M)(F)
Mandestrobin	173662-97-0	036603	Not Likely To Be Carcinogenic To Humans.	4/25/2016	NR	Not Applicable
Mandipropamid	374726-62-2	036602	Not Likely To Be Carcinogenic To Humans.	1/21/2009	NR	Not Applicable
Maneb	12427-38-2	014505	Group B--Probable Human Carcinogen.	7/7/1999	Q1* = 6.01 E-2 (3/4) Based on ETU.	Liver tumors in B6C3F1 mice (M)(F); No acceptable study in rats.
MB46513 (photodegradate of Fipronil)	120067-83-6	600050	Not Likely to Be Carcinogenic to Humans.	12/6/2000	NR	Not Applicable
MCPA + Salts	94-74-6	030501	Not Likely To Be Carcinogenic To Humans.	10/29/2003	NR	Not Applicable
MCPB Acid	94-81-5	019201	Not Likely To Be Carcinogenic To Humans.	10/1/2008	NR	Not Applicable
MCPB Sodium Salt	6062-26-6	019202	Not Likely To Be Carcinogenic To Humans.	10/24/2005	NR	Not Applicable
Mecoprop-P	16484-77-8	129046	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/13/2003	NR	Liver tumors in B6C3F1/CrlBR mice (F)
Mefenoxam	70630-17-0	113502	Not Likely To Be Carcinogenic To Humans.	5/17/2000	NR	Not Applicable
Mefentrifluconazole	1417782-03-6	122000	Not Likely To Be Carcinogenic To Humans.	4/11/2019	NR	Not Applicable
Mefluidide	53780-34-0	114001	Not Likely To Be Carcinogenic To Humans.	5/30/2007	NR	Not Applicable
Melamine	108-78-1	777201	Group D--Not Classifiable As To Human Carcinogenicity.	7/21/1993	NR	Not Applicable
Mepanipyrim	110235-47-7	288203	Likely To Be Carcinogenic To Humans.	4/20/2004	Q1* = 1.35 E-2 (3/4)	Liver tumors in Fisher 344 rats (F), B6C3F1 mice (M)(F)
Mepiquat Chloride	24307-26-4	109101	Not Likely To Be Carcinogenic To Humans.	2/19/2003	NR	Not Applicable
126/Dinocap II)	131-72-6	036000	Group E--Evidence Of Non-Carcinogenicity For Humans.	3/17/2009	NR	Not Applicable
Mercaptobenzothiazole, 2-	149-30-4	051701	Group C--Possible Human Carcinogen.	11/19/1992	RfD Approach	Adrenal tumors in Fisher 344 rats (M)(F); Pituitary tumors in Fisher 344 rats (F)

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Mesosulfuron methyl	208465-21-8	122009	Not Likely To Be Carcinogenic To Humans.	3/4/2004	NR	Not Applicable
Mesotrione	104206-82-8	122990	Not Likely To Be Carcinogenic To Humans.	4/12/2001	NR	Not Applicable
Metaflumizone	139968-49-3	281250	Not Likely To Be Carcinogenic To Humans.	1/24/2006	NR	Not Applicable
Metalaxyl	57837-19-1	113501	Group E--Evidence Of Non-Carcinogenicity for Humans.	4/20/1994	NR	Not Applicable
Metaldehyde	108-62-3	053001	Suggestive Evidence Of Carcinogenic Potential.	6/23/2005	NR	Liver tumors in Sprague Dawley rats (F), CD-1 mice (M)(F)
Metam sodium	137-42-8	039003	Likely To Be Carcinogenic To Humans.	5/14/2009	Q1* = 1.98 E-1(3/4)	Vascular tumors in CD-1 mice (M)(F)
Metconazole	125116-23-6	125619	Not Likely To Be Carcinogenic To Humans.	4/14/2006	NR	Liver tumors in CD-1 mice (M)(F); Established a mitogenic MOA for liver tumors in mice.
Methamidophos	10265-92-6	101201	Not Likely To Be Carcinogenic To Humans.	2/12/1998	NR	Not Applicable
Methidathion	950-37-8	100301	Group C--Possible Human Carcinogen.	2/19/1988	NR	Liver tumors in CD-1 mice (M)
Methiocarb	2032-65-7	100501	Group D--Not Classifiable As To Human Carcinogenicity.	3/2/1993	RfD Approach	Not Applicable
Methiozolin	403640-27-7	090088	Not Required (Non-Food).	5/30/2019	NR	Not Applicable
Methomyl	16752-77-5	090301	Group E--Evidence Of Non-Carcinogenicity For Humans.	10/25/1996	NR	Not Applicable
Methoxyfenozide	161050-58-4	121027	Not Likely To Be Carcinogenic To Humans.	7/1/1999	NR	Not Applicable
Methyl bromide	74-83-9	053201	Not Likely To Be Carcinogenic To Humans.	6/20/2001	NR	Not Applicable
Methyl isothiocyanate (MITC)	6317-18-6	068103	Likely to be Carcinogenic to Humans.	2/22/2018	Q1* = 5.18 x 10-9 (ppm)-1	Nasal tumors in Sprague-Dawley [Crl:CD(SD)] rats (M & F)
Methyl parathion	298-00-0	053501	Not Likely To Be Carcinogenic To Humans.	12/1/1997	NR	Not Applicable
Metiram	9006-42-2	014601	Group B--Probable Human Carcinogen.	7/7/1999	Q1* = 6.01 E-2 (3/4) Based on ETU.	Thyroid tumors in CD(BR) rats (M)(F)
Metofluthrin	240494-70-6	109709	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause A Mitogenic Response In The Liver.	7/26/2007	NR	Liver tumors in Wistar rats (M)(F); Established a mitogenic MOA for liver tumors in rats.
Metolachlor	51218-45-2	108801	Not Likely To Be Carcinogenic To Humans.	11/6/2017	RfD Approach	Liver tumors in Charles River CD (SD)BR rats (F); The CARC concluded that the in vitro and in vivo data adequately demonstrated dose and temporal concordance to support key events for the MOA leading to liver tumors in female rats. In the absence of a long-term carcinogenicity study with S-metolachlor, the tumorigenic effects of metolachlor can be reasonably explained by CAR activity demonstrated in the MOA for S-metolachlor. This is supported by the comparable effects of S-metolachlor and metolachlor on CYP2B expression/BROD activity and liver hypertrophy.
Metrafenone	220899-03-6	000325	Suggestive Evidence Of Carcinogenic Potential.	7/6/2006	NR	Liver tumors in CD-1 mice (M)
Metribuzin	21087-64-9	101101	Group D--Not Classifiable As To Human Carcinogenicity.	5/16/1995	NR	Not Applicable
Metsulfuron methyl	74223-64-6	122010	Not Likely To Be Carcinogenic To Humans.	3/14/2002	NR	Not Applicable
Mevinphos	7786-34-7	015801	Not Likely To Be Carcinogenic To Humans.	5/17/2000	NR	Not Applicable
MGK 264	113-48-4	057001	Group C--Possible Human Carcinogen.	6/7/1995	RfD Approach	Liver tumors in CD-1 mice (M)(F); Thyroid tumors in CD(BR) rats (M)
Molinate	2212-67-1	041402	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	12/14/2000	NR	Kidney, Testicular tumors in CD(SD)BR rats (M)
Momfluorothrin	609346-29-4	016331	Not Likely To Be Carcinogenic To Humans.	12/2/2014	NR	Liver tumors in Wistar rats (M)(F); Established mitogenicesis MOA for liver tumors in rats.
MON 4660	71526-07-3	600046	Likely To Be Carcinogenic To Humans.	12/9/1999	Q1* = 4.85 E-2 (3/4)	Bile Duct in Sprague Dawley rats (M); Liver tumors in CD-1 mice (M)(F), Sprague Dawley rats (M)(F); Stomach tumors in CD-1 mice (M)(F), Sprague Dawley rats (M); Lung tumors in CD-1 mice (M)
Monosodium acid methanearsonate (MMA)	2163-80-6	013803	Not Likely To Be Carcinogenic To Humans.	7/26/2000	NR	Not Applicable
Morpel 326	136-45-8	047201	Not Likely To Be Carcinogenic To Humans.	5/12/2015	NR	Not Applicable
MSMA-calcium salt	5902-95-4	013806	Not Likely To Be Carcinogenic To Humans.	12/14/2000	NR	Not Applicable
Myclobutanil	88671-89-0	128857	Group E--Evidence Of Non-Carcinogenicity For Humans.	6/16/1994	NR	Not Applicable
NAA potassium salt	15165-79-4	056003	Not Likely to Be Carcinogenic to Humans.	3/14/2012	NR	Not Applicable
Naled	300-76-5	034401	Group E--Evidence Of Non-Carcinogenicity For Humans.	8/31/1994	NR	Not Applicable
Naphthalene	91-20-3	055801	Classification Not Available.	12/26/2018	NR	Not Applicable
Napropamide	15299-99-7	103001	Not Likely To Be Carcinogenic To Humans.	7/7/2005	NR	Not Applicable
Naptalam Sodium Salt	132-67-2	030703	Group D--Not Classifiable As To Human Carcinogenicity.	9/7/1994	NR	Not Applicable
Napthalene Acetates	2122-70-5	056008	Not Likely To Be Carcinogenic To Humans.	3/5/2009	NR	Not Applicable

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Nicarbazin	330-95-0	085712	Not Likely To Be Carcinogenic To Humans.	12/2/2015	NR	Not Applicable
Nicosulfuron	111991-09-4	129008	Group E--Evidence Of Non-Carcinogenicity For Humans.	9/1/1998	NR	Not Applicable
Nitrapyrin	1929-82-4	069203	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Result In CAR Activation As Indicated By Cyp2b10 Expression.	5/8/2018	NR	Liver tumors in B6C3F1 mice (M)(F); Cyp2b10 induction is indicative CAR activation and the data for this key event in female mice can be added to the MOA previously established in male mice. Data are sufficient to support the proposed MOA for liver tumors in male and female mice.
Norflurazon	27314-13-2	105801	Group C--Possible Human Carcinogen.	11/2/1990	NR	Liver tumors in CD-1 mice (M)
Novaluron	116714-46-6	124002	Not Likely To Be Carcinogenic To Humans.	2/4/2004	NR	Not Applicable
Noviflumuron	121451-02-3	118204	Likely To Be Carcinogenic To Humans.	10/17/2017	Pending	Liver tumors in CD-1 mice (F), F344/N rats (M); Uterus tumors in F344/N rats (F)
Orthophenylphenol (see also PC 064104)	90-43-7	064103	Not Likely To Be Carcinogenic To Humans: Quantification Of Cancer Risk Is Not Required Since The NOAEL Selected For The Chronic RfD Would Address The Concerns For The Precursor Events Leading To Development Of Bladder And Liver Tumors.	10/12/2005	NR	Urinary Bladder tumors in Fischer 344 rats; Liver tumors in B6C3F1 (M); Established a cytotoxic MOA involving oxidative damage to cells and subsequent regenerative hyperplasia for urinary bladder tumors in rats.
Orthophenylphenol, Sodium salt (see also PC 064103)	132-27-4	064104	Not Likely To Be Carcinogenic To Humans: Quantification Of Cancer Risk Is Not Required Since The NOAEL Selected For The Chronic RfD Would Address The Concerns For The Precursor Events Leading To Development Of Bladder And Liver Tumors.	10/12/2005	NR	Urinary Bladder tumors in Fischer 344 rats; Liver tumors in B6C3F1 (M); Established a cytotoxic MOA involving oxidative damage to cells and subsequent regenerative hyperplasia for urinary bladder tumors in rats.
Orthosulfamuron	213464-77-8	108209	Suggestive Evidence Of Carcinogenic Potential.	10/26/2006	RfD Approach	Thyroid tumors in Han Wistar rats (M)
Oryzalin	19044-88-3	104201	Likely To Be Carcinogenic To Humans.	6/25/2003	Q1* = 7.79 E-3 (3/4)	Mammary tumors in Fisher 344 rats (F); Skin, Thyroid tumors in Fisher 344 rats (M)(F)
Oxadiazon	19666-30-9	109001	Likely To Be Carcinogenic To Humans.	5/1/2001	Q1* = 7.11 E-2 (3/4)	Liver tumors in CD-1 mice (M)(F), Fisher 344 rats (M)
Oxadixyl	77732-09-3	126701	Group C--Possible Human Carcinogen.	1/4/1989	Q1* = 5.3 E-2 (2/3)	Liver tumors in Han-Wistar rats (M)(F)
Oxamyl	23135-22-0	103801	Group E--Evidence Of Non-Carcinogenicity For Humans.	11/5/1996	NR	Not Applicable
Oxydemeton-methyl	301-12-2	058702	Not Likely To Be Carcinogenic To Humans.	7/24/1997	NR	Not Applicable
Oxyfluorfen	42874-03-3	111601	Likely To Be Carcinogenic To Humans.	4/20/2010	Q1* = 7.32 E-2 (3/4)	Liver tumors in CD-1 mice (M)
Oxytetracycline	2058-46-0	006308	Group D--Not Classifiable As To Human Carcinogenicity.	12/18/1992	NR	Not Applicable
Oxytetracycline	79-57-2	006304	Group D--Not Classifiable As To Human Carcinogenicity.	11/1/2016	NR	Not Applicable
Oxytetracycline Calcium	7179-50-2	006321	Group D--Not Classifiable As To Human Carcinogenicity.	11/1/2016	NR	Not Applicable
Oxythioquinox	2439-01-2	054101	Group B--Probable Human Carcinogen.	2/15/1996	Q1* = 3.42 E-2 (3/4)	Kidney, Liver tumors in Fisher 344 rats (M)(F); Lung tumors in NMRI mice (M)
Paclobutrazol	76738-62-0	125601	Group D--Not Classifiable As To Human Carcinogenicity.	6/23/1994	NR	Not Applicable
Paradichlorobenzene	106-46-7	061501	Not Likely To Be Carcinogenic To Humans.	6/5/2007	NR	Liver tumors in B6C3F1 mice (M)(F); Established a mitogenic MOA for liver tumors in mice.
Paraformaldehyde	30525-89-4	043002	Group B--Probable Human Carcinogen.	9/24/2008	Q1* = 1.3 E-5 per (µg/m3)	Not Applicable
Paranitrophenol	100-02-7	056301	Group D--Not Classifiable As To Human Carcinogenicity.	5/14/1996	NR	Not Applicable
Paraquat dichloride	1910-42-5	061601	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/19/2000	NR	Not Applicable
Parathion, ethyl-	56-38-2	057501	Group C--Possible Human Carcinogen.	9/11/1991	RfD Approach	Adrenal, Thyroid, Pancreatic tumors in Osborne-Mendel rats (M); Pancreatic tumors in Wistar rats (M)
Pebulate	1114-71-2	041403	Not Likely To Be Carcinogenic To Humans.	12/7/1998	NR	Not Applicable
Pendimethalin	40487-42-1	108501	Group C--Possible Human Carcinogen.	7/24/1992	RfD Approach	Thyroid tumors in Sprague-Dawley rats (M)(F)
Penflufen	494793-67-8	100249	Suggestive Evidence Of Carcinogenic Potential.	3/30/2011	RfD Approach	Brain, Vascular tumors in Wistar rats (M); Ovarian tumors in Wistar rats (F)
Penoxulam	219714-96-2	119031	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	3/24/2004	NR	Mononuclear Cell Leukemia in Fisher 344 rats (M)
Pentachloronitrobenzene (PCNB)	82-68-8	056502	Group C--Possible Human Carcinogen.	12/18/1992	RfD Approach	Thyroid tumors in CD rats (M)
Pentachlorophenol	87-86-5	063001	Group B--Probable Human Carcinogen.	1/3/1991	Not Determined	Adrenal tumors in B6C3F1 mice (M); Liver, Vascular tumors in B6C3F1 mice (M)(F)
Penthiopyrad	183675-82-3	090112	Suggestive Evidence Of Carcinogenic Potential.	10/18/2011	RfD Approach	Liver tumors in CD-1 mice (M)
Permethrin	52645-53-1	109701	Likely To Be Carcinogenic To Humans.	10/23/2002	Q1* = 9.567 E-3 (3/4)	Lung tumors in CD-1 mice (F); Liver tumors in CD-1 mice (M)(F)

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Pethoxamid	106700-29-2	090208	Suggestive Evidence Of Carcinogenic Potential.	4/15/2019	RfD Approach	Thyroid Follicular Cell Crl:CD (BR) rats (M); There is insufficient evidence to support the proposed thyroid tumor MOA in male rats. The MOA proposal for pethoxamid-induced mouse liver tumors through activation of the CAR was found to be acceptable.
Phenmedipham	13684-63-4	098701	Group D--Not Classifiable As To Human Carcinogenicity.	4/28/1993	NR	Not Applicable
PHMB	32289-58-0	111801	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	7/16/2003	NR	Vascular tumors in Wistar rats (F), C5B1/10JfCD-1/Alpk mice (M)(F), Alderley Park mice (F)
Phorate	298-02-2	057201	Group E--Evidence Of Non-Carcinogenicity For Humans.	12/30/1993	NR	Not Applicable
Phosalone	2310-17-0	097701	Not Likely To Be Carcinogenic To Humans.	8/12/1999	NR	Not Applicable
Phosmet	732-11-6	059201	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	10/27/1999	NR	Liver tumors in B6C3F1 mice (M)(F); Mammary tumors in B6C3F1 mice (F)
Phosphamidon	13171-21-6	018201	Group C--Possible Human Carcinogen.	5/31/1989	NR	Urinary Bladder, Liver tumors in Sprague-Dawley rats (M)
Phostebupirim	96182-53-5	129086	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/27/1993	NR	Not Applicable
Picloram Acid	1918-02-1	005101	Group E--Evidence Of Non-Carcinogenicity For Humans.	4/1/1994	NR	Not Applicable
Picloram Acid Ethylhexyl Ester	26952-20-5	005103	Group E--Evidence Of Non-Carcinogenicity for Humans.	4/1/1994	NR	Not Applicable
Picloram Acid Potassium Salt	2545-60-0	005104	Group E--Evidence Of Non-Carcinogenicity for Humans.	4/1/1994	NR	Not Applicable
Picloram Acid Triisopropanolamine Salt	6753-47-5	005102	Group E--Evidence Of Non-Carcinogenicity for Humans.	4/1/1994	NR	Not Applicable
Picoxystrobin	117428-22-5	129200	Suggestive Evidence Of Carcinogenic Potential.	11/15/2011	NR	Testicular tumors in CD (BR) rats (M)
Pinoxaden	243973-20-8	147500	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	5/18/2005	NR	Not Applicable
Piperonyl butoxide	51-03-6	067501	Group C--Possible Human Carcinogen.	6/7/1995	RfD and MOE Approaches	Liver tumors in CD-1 mice (M)(F)
Pirimicarb	23103-98-2	106101	Likely To Be Carcinogenic To Humans.	7/13/2005	Q1* = 3.526 E -2 (3/4)	Liver, Lung tumors in Swiss mice (M)(F); Mammary, Ovarian tumors in Swiss mice (F); Lung tumors in CD-1 mice (F)
Pirimiphos-methyl	29232-93-7	108102	Cannot Be Determined.	1/29/1998	NR	Not Applicable
Polymeric Betaine	214710-34-6	103679	Data Are Inadequate for an Assessment of Human Carcinogenic Potential.	10/3/2006	NR	Not Applicable
Potassium dichromate	7778-50-9	068302; 021101	Likely To Be Carcinogenic To Humans: See Hexavalent Chromium (CrVI).	7/1/2009	Q1* = 7.91 E-1 (3/4)	Oral mucosa, Tongue tumors in Fisher 344 rats (M)(F); Intestinal (Duodenum, Jejunum, Ileum) tumors in B6C3F1 mice (M)(F); Established a mutagenic MOA.
Prallethrin	23031-36-9	128722	Not Likely To Be Carcinogenic To Humans.	6/27/2003	NR	Not Applicable
Primisulfuron-methyl	86209-51-0	128973	Group D--Not Classifiable As To Human Carcinogenicity.	5/3/1990	NR	Not Applicable
Prochloraz	67747-09-5	128851	Group C--Possible Human Carcinogen.	7/1/1988	Q1* = 1.5 E-1 (2/3)	Liver tumors in CD-1 mice (M)(F)
Procymidone	32809-16-8	129044	Group B--Probable Human Carcinogen.	4/5/1991	Q1* = 1.339 E-2 (3/4)	Pituitary tumors in Osborne-Mendel rats (M)(F); Testicular tumors in Osborne-Mendel rats (M); Liver tumors in B6C3F1 mice (F)
Prodiamine	29091-21-2	110201	Group C--Possible Human Carcinogen.	6/10/1991	RfD Approach	Thyroid, Pancreatic tumors in Sprague-Dawley rats (M)(F); Fibrosarcomas in CD-1 mice (M)
Profenofos	41198-08-7	111401	Group E--Evidence Of Non-Carcinogenicity For Humans.	2/6/1996	NR	Not Applicable
Prohexadione	127277-53-6	112600	Not Likely To Be Carcinogenic To Humans.	4/14/2000	NR	Not Applicable
Prometon	1610-18-0	080804	Group D--Not Classifiable As To Human Carcinogenicity.	11/25/1992	NR	Not Applicable
Prometryn	7287-19-6	080805	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/26/1994	NR	Not Applicable
Pronamide	23950-58-5	101701	Not Likely To Be Carcinogenic To Humans.	12/2/2014	NR	Testicular, Thyroid tumors in CD rats (M); Liver tumors in CD-1 mice (M)(F); Established a mitogenic MOA for liver tumors in mice, altered homeostasis of the HPT axis for rat thyroid tumors, and increased testosterone metabolism for rat testicular tumors.
Propachlor	1918-16-7	019101	Likely To Be Carcinogenic To Humans.	10/16/1997	Q1* = 3.2 E-2 (3/4)	Liver tumors in CD-1 mice (M); Stomach tumors in Fischer 344 rats (M); Ovarian tumors in Sprague-Dawley rats (F); Thyroid tumors in Sprague-Dawley rats (M)(F)
Propamocarb hydrochloride	25606-41-1	119302	Not Likely To Be Carcinogenic To Humans.	5/31/2000	NR	Not Applicable
Propanil	709-98-8	028201	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	6/19/2001	NR	Liver, Testicular tumors in Sprague-Dawley rats (M)

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Propargite	2312-35-8	097601	Group B--Probable Human Carcinogen.	7/23/1992	Q1* = 1.92 E-1 (3/4)	Jejunum tumors in CD(BR) rats (M)(F)
Propazine	139-40-2	080808	Not Likely To Be Carcinogenic To Humans.	12/8/2005	NR	Mammary tumors in Sprague Dawley rats (F); Established a neuroendocrine MOA for mammary tumors in rats.
Propetamphos	31218-83-4	113601	Not Likely To Be Carcinogenic To Humans.	10/31/1998	NR	Not Applicable
Propiconazole	60207-90-1	122101	Group C--Possible Human Carcinogen.	9/11/1992	RfD Approach	Liver tumors in CD-1 mice (M)
Propineb	12071-83-9	522200	Likely to Be Carcinogenic to Humans.	2/11/2013	Q1* = 4.95 X 10E-2 Based on PTU male mouse liver tumors combined.	Lung tumors in NMRI mice (F); Liver tumors in SPF CF1/W74 mice (M)(F), CF-1 mice (M)(F); Established a hormone disruption MOA for thyroid tumors in rats.
Propoxur	114-26-1	047802	Group B--Probable Human Carcinogen.	6/17/1996	Q1* = 3.69 E-3 (3/4)	Bladder tumors in Wistar rats (M)(F); Liver tumors in B6C3F1 mice (M)
Propoxycarbazone-Sodium	181274-15-7	122019	Not Likely To Be Carcinogenic To Humans.	4/6/2004	NR	Not Applicable
Propylene Oxide	75-56-9	042501	Group B--Probable Human Carcinogen.	7/31/2006	Q1* (oral) = 0.15 (mg/kg/day)-1; Q1* (concentration based approach) = 0.000086 (mg/kg diet)-1; Q1* (inhalation) = 3.5x10 6 (µg/m3)-1	Forestomach tumors in Sprague-Dawley rats (F); Hematology in B6C3F1 mice (M)(F)
Proquinazid	189278-12-4	044502	Suggestive Evidence Of Carcinogenic Potential.	4/24/2013	NR	Liver tumors in CD (SD) BR rats (F); Thyroid tumors in CD (SD) BR rats (M)
Prosulfuron	94125-34-5	129031	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	1/24/2000	NR	Not Applicable
Prothioconazole	178928-70-6	113961	Not Likely To Be Carcinogenic To Humans.	12/31/2007	NR	Not Applicable
Pydiflumetofen	1228284-64-7	090110	Not Likely To Be Carcinogenic To Humans.	12/13/2017	RfD Approach	Liver tumors in Crl:CD-1(ICR) mice (M); CAR-mediated cell proliferation MOA.
Pymetrozine	123312-89-0	101103	Likely To Be Carcinogenic To Humans.	9/22/1999	Q1* = 1.19 E-2 (3/4)	Liver tumors in Tif:RAlf(SPF) Sprague-Dawley rats (F), Tif:MAGf(SPF) mice (M)(F)
Pyraclostrobin	175013-18-0	099100	Not Likely To Be Carcinogenic To Humans.	2/15/2007	NR	Not Applicable
Pyraflufen ethyl	129630-19-9	030090	Likely To Be Carcinogenic To Humans.	10/8/2002	Q1* = 3.32 E-2 (3/4)	Liver tumors in (SPF) ICR Crj CD-1 mice (M)(F)
Pyrasulfotole	365400-11-9	000692	Suggestive Evidence Of Carcinogenic Potential.	5/17/2007	NR	Ocular tumors in Wistar rats (M); Urinary Bladder tumors in C57BL mice (M)(F)
Pyrazon	1698-60-8	069601	Not Likely To Be Carcinogenic To Humans.	7/28/2005	NR	Not Applicable
Pyrethrins	8003-34-7	069001	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause A Mitogenic Response In The Liver.	2/14/2008	NR	Liver tumors in CD (SD)IGS BR rats (F); Established a non-genotoxic, mitogenic MOA for liver tumors in female rats.
Pyridaben	96489-71-3	129105	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/11/1994	NR	Not Applicable
Pyridalyl	179101-81-6	295149	Not Likely To Be Carcinogenic To Humans.	8/3/2004	NR	Not Applicable
Pyridate	55512-33-9	128834	Not Likely To Be Carcinogenic To Humans.	1/24/2000	NR	Not Applicable
Pyrifluquinazon	337458-27-2	555555	Not Likely To Be Carcinogenic To Humans: At Levels That Do Not Alter Rodent Hormone Homeostasis.	6/21/2012	NR	Testicular tumors in CD-1 mice (M), Fisher 344 rats (M); Established an Androgen Dependent MOA for testicular tumors in mice.
Pyrimethanil	53112-28-0	288201	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Alter Rat Thyroid Hormone Homeostasis.	1/3/2012	NR	Thyroid tumors in Sprague-Dawley rats (M)(F); Thyroid Hormone Disruption.
Pyriofenone	688046-61-9	028828	Not Likely To Be Carcinogenic To Humans.	12/14/2011	NR	Not Applicable
Pyriproxyfen	95737-68-1	129032	Group E--Evidence Of Non-Carcinogenicity For Humans.	8/15/1995	NR	Not Applicable
Pyrithiobac-sodium	123343-16-8	078905	Group C--Possible Human Carcinogen.	9/5/1995	Q1* = 1.05 E-3 (3/4)	Kidney tumors in CD (BR) rats (M); Liver tumors in CD-1 mice (M)
Pyroxasulfone	447399-55-5	090099	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause Urinary Bladder Calculi Formation Resulting In Cellular Damage Of The Urinary Tract.	5/17/2011	RfD Approach	Urinary Bladder tumors in CD (SD) IGS BR rats (M); Established a cytotoxic and regeneration proliferation MOA for urinary bladder tumors.
Pyroxsulam	422556-08-9	108702	Not Likely To Be Carcinogenic To Humans.	7/12/2007	NR	Not Applicable
Quinchlorac	84087-01-4	128974	Group D--Not Classifiable As To Human Carcinogenicity.	8/26/1992	NR	Not Applicable
Quinoxyfen	124495-18-7	055459	Not Likely To Be Carcinogenic To Humans.	1/28/2003	NR	Not Applicable
Quizalofop ethyl	76578-14-8	128711	Group D--Not Classifiable As To Human Carcinogenicity.	3/17/1988	NR	Not Applicable

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Quizalofop-P-ethyl	100646-51-3	128709	Group D--Not Classifiable As To Human Carcinogenicity.	8/18/2016	NR	Not Applicable
Resmethrin	10453-86-8	097801	Likely To Be Carcinogenic To Humans.	5/25/2005	Q1* = 5.621 E-2 (3/4)	Liver tumors in Sprague-Dawley rats (F), Swiss mice (M)
Rimsulfuron	122931-48-0	129009	Not Likely To Be Carcinogenic To Humans.	2/19/1998	NR	Not Applicable
RoteNone	83-79-4	071003	Group E--Evidence Of Non-Carcinogenicity For Humans.	10/5/1988	NR	Not Applicable
Saflufenacil (BAS 800 H)	372137-35-4	118203	Not Likely To Be Carcinogenic To Humans.	7/22/2009	NR	Not Applicable
S-Bioallethrin	28434-00-6	004004	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	12/2/2003	NR	Kidney tumors in Sprague-Dawley rats (M)
Sedaxane	874967-67-6	129223	Suggestive Evidence Of Carcinogenic Potential.	5/4/2017	RfD Approach	Uterine tumors in Wistar rats (F); MOA not supported.
Sethoxydim	74051-80-2	121001	Not Likely To Be Carcinogenic To Humans.	3/19/2003	NR	Not Applicable
Simazine	122-34-9	080807	Not Likely To Be Carcinogenic To Humans.	4/14/2005	NR	Mammary tumors in Sprague-Dawley rats (F); Established a neuroendocrine disruption MOA for mammary tumors in rats.
s-Metolachlor	87392-12-9	108800	Not Likely To Be Carcinogenic To Humans.	11/6/2017	RfD Approach	Liver tumors in Charles River CD (SD)BR rats (F); The CARC concluded that the in vitro and in vivo data adequately demonstrated dose and temporal concordance to support key events for the MOA leading to liver tumors in female rats. In the absence of a long-term carcinogenicity study with S-metolachlor, the tumorigenic effects of metolachlor can be reasonably explained by CAR activity demonstrated in the MOA for S-metolachlor. This is supported by the comparable effects of S-metolachlor and metolachlor on CYP2B expression/BROD activity and liver hypertrophy.
Sodium bentazon	50723-80-3	103901	Group E--Evidence Of Non-Carcinogenicity For Humans.	1/14/1992	NR	Not Applicable
Sodium Cyanide	143-33-9	074002	Classification Not Available.	9/18/2018	NR	Not Applicable
Sodium Fluoroacetate	62-74-8	075003	Not Required (Non-Food).	9/20/2018	NR	Not Applicable
Sodium Metaborate	7775-19-1	011104	Not Likely To Be Carcinogenic To Humans.	12/1/2015	NR	Not Applicable
Sodium omadine	15922-78-8	088004	Group D--Not Classifiable As To Human Carcinogenicity.	5/16/1995	NR	Not Applicable
Anhydrous	1330-43-4	011112	Not Likely To Be Carcinogenic To Humans.	12/1/2015	NR	Not Applicable
Pentahydrate	12179-04-3	011110	Not Likely To Be Carcinogenic To Humans.	12/1/2015	NR	Not Applicable
Solatenol	1072957-71-1	122305	Suggestive Evidence Of Carcinogenic Potential.	9/30/2014	NR	Brain tumors in Han Wistar rats (M); The CARC concluded that a non-genotoxic MOA for thyroid tumors observed in male rats has been established as a result of upregulation of UDPGT, increased clearance of T3 and T4 hormones and increased TSH levels, resulting in increased thyroid cell proliferation, which progress to form thyroid tumors.
Spinetoram	187166-40-1 + 187166-15-0	110008	Not Likely To Be Carcinogenic To Humans.	9/20/2007	NR	Not Applicable
Spinosad	131929-60-7	110003	Not Likely To Be Carcinogenic To Humans.	7/18/2002	NR	Not Applicable
Spirodiclofen	148477-71-8	124871	Likely To Be Carcinogenic To Humans.	6/10/2004	Q1* = 1.49 E-2 (3/4)	Liver tumors in CD-1 mice (M)(F); Testicular tumors in Wistar rats (M); Uterine tumors in Wistar rats (F)
Spiromesifen	283594-90-1	024875	Not Likely To Be Carcinogenic To Humans.	5/21/2008	NR	Not Applicable
Spirotetramat	203313-25-1	392201	Not Likely To Be Carcinogenic To Humans.	3/26/2009	NR	Not Applicable
Spiroxamine	118134-30-8	120759	Not Likely To Be Carcinogenic To Humans.	11/14/2003	NR	Not Applicable
Starlicide	7745-89-3	009901	Not Required (Non-Food).	7/17/2018	NR	Not Applicable
Streptomycin	57-92-1	006306	Classification Not Available.	12/12/2017	NR	Guideline carcinogenicity studies are not available.
Streptomycin Sesquisulfate	3810-74-0	006310	Classification Not Available.	12/12/2017	NR	Guideline carcinogenicity studies are not available.
Sulfentrazone	122836-35-5	129081	Group E--Evidence Of Non-Carcinogenicity For Humans.	5/7/1996	NR	Not Applicable
Sulfosate	81591-81-3	128501	Group E--Evidence Of Non-Carcinogenicity For Humans.	7/26/1994	NR	Not Applicable
Sulfosulfuron	141776-32-1	085601	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause Urinary Bladder Calculi Formation Resulting In Cellular Damage Of The Urinary Tract.	12/16/2008	NR	Urinary Bladder tumors in rats (F), mice (M); Established a cytotoxic and regeneration proliferation MOA for urinary bladder tumors.
Sulfoxaflor	946578-00-3	005210	Suggestive Evidence Of Carcinogenic Potential.	4/26/2012	RfD Approach	Preputial Gland tumors in Fisher 344 rats (M); Accepted a Mitogenic MOA for liver tumors in male rats.
Sulfuryl fluoride	2699-79-8	078003	Not Likely To Be Carcinogenic To Humans.	5/24/2001	NR	Not Applicable
Sulprofos	35400-43-2	111501	Group E--Evidence Of Non-Carcinogenicity for Humans.	3/26/1996	NR	Not Applicable
Sumithrin	26002-80-2	069005	Not Likely To Be Carcinogenic To Humans.	5/30/2006	NR	Not Applicable
Tau-fluvalinate	102851-06-9	109302	Not Likely To Be Carcinogenic To Humans.	9/29/2005	NR	Not Applicable

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TCMTB (Busan 72)	21564-17-0	035603	Group C--Possible Human Carcinogen.	8/28/1996	RfD Approach	Testicular tumors in Sprague-Dawley rats (M); Thyroid tumors in Sprague-Dawley rats (F)
Tebuconazole	107534-96-3	128997	Group C--Possible Human Carcinogen.	9/15/1993	RfD Approach	Liver tumors in NMRI mice (M)(F)
Tebufenozide	112410-23-8	129026	Group E--Evidence Of Non-Carcinogenicity For Humans.	8/29/1994	NR	Not Applicable
Tebufenpyrad	119168-77-3	090102	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	7/15/2002	NR	Liver tumors in Fisher 344 rats (M)(F)
Tebuthiuron	34014-18-1	105501	Group D--Not Classifiable As To Human Carcinogenicity.	3/1/1993	NR	Not Applicable
Teflubenzuron	83121-18-0	129048	Suggestive Evidence Of Carcinogenic Potential.	7/1/2015	NR	Liver tumors in NMRI mice (M)
Tefluthrin	79538-32-2	128912	Not Likely To Be Carcinogenic To Humans.	5/30/2012	NR	Not Applicable
Telone	542-75-6	029001	Group B--Probable Human Carcinogen.	3/19/2002	Q1* = 1.3 E-5 (3/4) (Inhalation)	Forestomach, Liver, Mammary, Thyroid, Adrenal, Urinary Bladder, Lung tumors in Fischer 344 rats (M)(F), B6C3F1 mice (M)(F)
Tembotrione	335104-84-2	012801	Suggestive Evidence Of Carcinogenic Potential.	5/22/2007	RfD Approach	Ocular tumors in Wistar rats (M)
Tepraloxydim	149979-41-9	121005	Data Are Inadequate For An Assessment Of Human Carcinogenic Potential.	2/27/2001	NR	Not Applicable
Terbacil	5902-51-2	012701	Group E--Evidence Of Non-Carcinogenicity For Humans.	9/30/1994	NR	Not Applicable
Terbufos	13071-79-9	105001	Group E--Evidence Of Non-Carcinogenicity For Humans.	3/9/1994	NR	Not Applicable
Terbuthylazine	5915-41-3	080814	Group D--Not Classifiable As To Human Carcinogenicity.	8/24/1994	NR	Not Applicable
Terbutryn	886-50-0	080813	Group C--Possible Human Carcinogen.	3/3/1988	NR	Mammary, Liver, Thyroid, Testicular tumors in CD rats (M)(F)
Terrazole	2593-15-9	084701	Likely To Be Carcinogenic To Humans.	4/4/2019	Q1* = 3.58 E-2 (3/4)	Thyroid and Testes Interstitial Cell Tumors tumors in Sprague-Dawley rats (M); Bile Duct and Mammary Gland tumors in Sprague-Dawley rats (F); Liver tumors in Sprague-Dawley rats (M & F); Liver tumors in Crl:CD-1(ICR)BR mice (M & F)
Tetrachlorvinphos	961-11-5	083701	Likely To Be Carcinogenic To Humans.	3/7/2002	Q1* = 1.83 E-3 (3/4)	Adrenal, Thyroid tumors in Sprague-Dawley rats (M); Liver tumors in B6C3F1 mice (F)
Tetraconazole	112281-77-3	120603	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause A Mitogenic Response In The Liver.	4/2/2013	NR	Liver tumors in CD-1 (ICR) mice (M)(F); Accepted a Mitogenic MOA for liver tumors in mice.
Tetramethrin	7696-12-0	069003	Group C--Possible Human Carcinogen.	12/11/1989	NR	Testicular tumors in CR CD-1 rats (M), Sprague-Dawley rats (M), Long-Evans Hooded rats (M)
Tetraniliprole	1229654-66-3	090097	Suggestive Evidence Of Carcinogenic Potential.	5/30/2019	RfD Approach	Uterus Wistar rats (F); Not supported
Thiabendazole	148-79-8	060101	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	3/8/2002	MOE Approach	Thyroid tumors in Sprague-Dawley CD (BR) rats (M)(F); Established a hormonal MOA for thyroid tumors in rats.
Thiacloprid	111988-49-9	014019	Likely To Be Carcinogenic To Humans.	10/31/2012	Q1* = 4.06 E-2 (3/4)	Thyroid tumors in Wistar rats (M)(F); Uterine tumors in Wistar rats (F); Ovarian tumors in B6C3F mice (F)
Thiamethoxam	153719-23-4	060109	Not Likely To Be Carcinogenic To Humans.	6/13/2005	NR	Liver tumors in Tif:MAGf (SPF) mice (M)(F); Established a cytotoxic, regenerative proliferative, non-genotoxic MOA for liver tumors in mice.
Thiazopyr (MON 13200)	117718-60-2	129100	Suggestive Evidence Of Carcinogenic Potential.	12/6/2007	NR	Kidney tumors in Sprague Dawley rats (M)(F)
Thidiazuron	51707-55-2	120301	Not Likely To Be Carcinogenic To Humans.	8/31/2005	NR	Not Applicable
Thiencarbazone-methyl	317815-83-1	015804	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Cause Urinary Bladder Calculi Formation Resulting In Cellular Damage Of The Urinary Tract.	2/29/2008	NR	Urinary Bladder tumors in C57BL/6J mice (M)(F); Established a cytotoxic and regeneration proliferation MOA for urinary bladder tumors in mice.
Thifensulfuron methyl	79277-27-3	128845	Not Likely To Be Carcinogenic To Humans.	12/12/2006	NR	Not Applicable
Thiobencarb (Bolero)	28249-77-6	108401	Group D--Not Classifiable As To Human Carcinogenicity.	6/10/1996	NR	Not Applicable
Thiocyclam hydrogen oxalate	31895-22-4	128868	Group D--Not Classifiable As To Human Carcinogenicity.	9/15/1994	NR	Not Applicable
Thiodicarb	59669-26-0	114501	Group B--Probable Human Carcinogen.	6/10/1996	MOE Approach	Testicular tumors in Sprague-Dawley rats (M); Liver tumors in CD-1 mice (M)(F)
Thiophanate-methyl	23564-05-8	102001	Likely To Be Carcinogenic To Humans.	8/24/1999	Q1* = 1.16 E-2 (3/4)	Thyroid tumors in Fisher 344 rats (M)(F); Liver tumors in CD-1 mice (M)(F)
Thiram	137-26-8	079801	Not Likely To Be Carcinogenic To Humans.	4/14/2003	NR	Not Applicable
Tioxazafen (MON 102100)	330459-31-9	074752	Not Likely To Be Carcinogenic To Humans.	9/5/2019	RfD Approach	Liver tumors in CD-1 mice (M & F); Sufficient data supporting a cytotoxic MOA for liver tumors in mice.
Tolclofos-methyl	57018-04-9	128905	Not Required (Non-Food).	3/22/2012	NR	Not Applicable
Tolfenpyrad	129558-76-5	090111	Not Likely To Be Carcinogenic To Humans.	6/3/2010	NR	Not Applicable
Tolpyralate	928783-29-3	573101	Suggestive Evidence Of Carcinogenic Potential.	1/18/2017	NR	Eye tumors in BrlHan:WIST@Jcl(GALAS) rats (M); The CARC concluded that despite the limited MOA data for tolpyralate, the eye tumors in male rats were likely related to tyrosine accumulation from HPPD inhibition.

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Tolyfluanid	731-27-1	309200	Likely To Be Carcinogenic To Humans.	6/18/2002	Q1* = 1.59 E-3 (3/4)	Thyroid tumors in Wistar rats (M)(F)
Topramezone	210631-68-8	123009	Not Likely To Be Carcinogenic To Humans: At Doses That Do Not Alter Rat Thyroid Hormone Homeostasis.	5/19/2005	NR	Thyroid tumors in Wistar rats (M)(F); Established a hormonal MOA for thyroid tumors in rats, observed only at an excessive dose.
Tralkoxydim	87820-88-0	121000	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	6/30/2004	NR	Testicular tumors in Wistar rats (M); Ovarian tumors in Syrian Golden hamsters (F)
Transfluthrin	118712-89-3	129140	Not Required (Non-Food).	6/1/2018	NR	Not Applicable
Triadimefon	43121-43-3	109901	Group C--Possible Human Carcinogen.	12/4/1996	RfD Approach	Thyroid tumors in Wistar rats (M); Liver tumors in NMRI mice (M)(F)
Triadimenol	55219-65-3	127201	Group C--Possible Human Carcinogen.	1/29/1988	NR	Liver tumors in CF1/W74 mice (F)
Triallate	2303-17-5	078802	Group C--Possible Human Carcinogen.	1/12/1994	Q1* = 7.17 E-2 (3/4)	Kidney tumors in Sprague-Dawley rats (M); Liver tumors in B6C3F1 mice (F)
Triasulfuron	82097-50-5	128969	Group E--Evidence Of Non-Carcinogenicity For Humans.	2/27/1991	NR	Not Applicable
Triazamate	112143-82-5	128100	Not Likely To Be Carcinogenic To Humans.	12/1/1997	NR	Not Applicable
Tribenuron methyl	101200-48-0	128887	Group C--Possible Human Carcinogen.	7/14/1989	NR	Mammary tumors in Sprague-Dawley rats (F)
Tribufos	78-48-8	074801	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	5/22/1997	MOE Approach	Liver tumors in CD-1 mice (M); Lung tumors in CD-1 mice (F); Intestinal tumors in CD-1 mice (M)(F)
Tributyltin maleate	14275-57-1	083118	Group D--Not Classifiable As To Human Carcinogenicity.	3/31/2005	NR	Not Applicable
Trichlorfon	52-68-6	057901	Likely To Be Carcinogenic To Humans: At High Doses; Not Likely To Be Carcinogenic To Humans At Low Doses.	7/15/1999	NR	Kidney, Lung tumors in Fischer 344 rats (M)(F); Mammary tumors in CD-1 mice (F)
Triclopyr	55335-06-3	116001	Group D--Not Classifiable As To Human Carcinogenicity.	5/9/1996	NR	Not Applicable
Triclosan	3380-34-5	054901	Not Likely To Be Carcinogenic To Humans.	1/4/2008	NR	Liver tumors in CD-1 mice (M)(F); Established a PPARα MOA for liver tumors in mice.
Tricyclazole	41814-78-2	120201	Not Likely To Be Carcinogenic To Humans.	4/1/2014	NR	Not Applicable
Tridiphane	58138-08-2	123901	Group C--Possible Human Carcinogen.	4/22/1986	NR	Liver tumors in B6C3F1 mice (F)
Trifloxystrobin	141517-21-7	129112	Not Likely To Be Carcinogenic To Humans.	6/16/1999	NR	Not Applicable
Trifloxysulfuron	290332-10-4	119009	Not Likely To Be Carcinogenic To Humans.	7/22/2003	NR	Not Applicable
Triflumezopyrim	1263133-33-0	129210	Not Likely To Be Carcinogenic To Humans: At Dose Levels That Do Not Cause A Significant Induction In CYP2B Enzyme Activity.	8/10/2017	MOE Approach	Liver tumors in Crl:CD-1 (ICR) mice (M); Mitogenesis.
Triflumizole	68694-11-1	128879	Group E--Evidence Of Non-Carcinogenicity For Humans.	8/10/1993	NR	Not Applicable
Trifluralin	1582-09-8	036101	Group C--Possible Human Carcinogen.	4/11/1986	Q1* = 2.93 E-3 (3/4)	Thyroid, Kidney, Urinary Bladder tumors in Fischer 344 rats (F)
Triflusulfuron-methyl	126535-15-7	129002	Group C--Possible Human Carcinogen.	5/28/1996	RfD Approach	Testicular tumors in CD-1 rats (M)
Triforine	26644-46-2	107901	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	6/29/2004	NR	Liver tumors in CD-1 mice (M); Lung tumors in CD-1 mice (F)
Trinexapac-Ethyl	95266-40-3	112602	Not Likely To Be Carcinogenic To Humans.	9/5/2008	NR	Not Applicable
Triphenyltin hydroxide (TPTH)	76-87-9	083601	Group B--Probable Human Carcinogen.	5/24/1990	Q1* = 1.83 E-0 (3/4)	Testicular, Pituitary tumors in Wistar rats (M)(F); Liver tumors in NMRI mice (M)(F)
Triticonazole	131983-72-7	125620	Not Likely To Be Carcinogenic To Humans.	6/15/2006	NR	Not Applicable
Troysan polyphase (IPBC)	55406-53-6	107801	Not Likely to Be Carcinogenic to Humans.	12/4/1996	NR	Not Applicable
UDMH	57-14-7	600018	Group B--Probable Human Carcinogen.	7/26/1991	Q1* = 4.6 E-1 (2/3)	Lung, Vascular, Liver, Kidney tumors in multiple species, strains & studies.
UMP-488 (PAL 6000)	111578-32-6	129025	Group E--Evidence Of Non-Carcinogenicity for Humans.	5/6/1994	NR	Not Applicable
Uniconazole	83657-22-1	128976	Group C--Possible Human Carcinogen.	10/11/1990	RfD Approach	Liver tumors in CD-1 mice (M)
Uniconazole-P	83657-17-4	138976	Group C--Possible Human Carcinogen.	10/11/1990	RfD Approach	Liver tumors in CD-1 mice (M)
Valifenalate	283159-90-0	128200	Not Likely To Be Carcinogenic To Humans.	5/2/2019	RfD Approach	Liver tumors in Crl:CD-1(ICR)BR mice (M)(F); MOA established for tumors in male and female mice.
Vinclozolin	50471-44-8	113201	Group C--Possible Human Carcinogen.	6/20/2000	MOE Approach	Testicular tumors in Wistar rats (M)
Xylene (dimethyl-benzene)	1330-20-7	086802	Not Likely To Be Carcinogenic To Humans.	3/6/2009	NR	Not Applicable
Zeta-Cypermethrin	52315-07-8	129064	Group C--Possible Human Carcinogen.	9/27/1988	NR	Lung tumors in Alderly Park SPF Swiss strain mice (F)
Ziram	137-30-4	034805	Suggestive Evidence Of Carcinogenicity, But Not Sufficient To Assess Human Carcinogenic Potential.	2/6/2003	NR	Vascular tumors in CD(SD)BR rats (M); Preputial Gland tumors in Fisher 344 rats (M)
Zoxamide	156052-68-5	101702	Not Likely To Be Carcinogenic To Humans.	2/7/2001	NR	Not Applicable

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

[SEQ CHAPTER \h \r 1]**MEMORANDUM**

DATE: September 26, 2019

SUBJECT: **Chemicals Evaluated for Carcinogenic Potential by the Office of Pesticide Programs**

FROM: Gregory Akerman, Chief
Science Information Management Branch
Health Effect Division (7509P)
Office of Pesticide Programs

TO: Division Directors AD, BPPD, EFED, FEAD, HED, PRD and RD

The attached list provides an overview of chemicals evaluated for carcinogenic potential by the Health Effects Division (HED) of the Office of Pesticide Programs (OPP) through August 2019. Applying the Agency's Guidelines for Carcinogen Risk Assessment, the classification of the chemical is made by HED's Cancer Assessment Review Committee (CARC) or, in the case of where there is no evidence of carcinogenicity, by the HED Risk Assessment Team.

This list includes the chemical name, CAS Number, PC code, the cancer classification, report date, test species and tumor type(s) as well as method of quantification of cancer risk and established mode of action, as applicable.

It should be noted that the evaluation of many of these chemicals is an ongoing process, therefore, the information in this list (i.e., classification and/or the quantification) may be subject to change as new and/or additional data are submitted to OPP. This list should not be used as the single source for either the classification or quantification of the carcinogenic potential. This list will be updated annually.

If further information is required, please contact Brenda May (Phone: 703-308-6175; E-mail: may.brenda@epa.gov).

Chemicals Evaluated for Carcinogenic Potential
Science Information Management Branch
Health Effects Division
Office of Pesticide Programs
U.S. Environmental Protection Agency

BACKGROUND

What is this list?

The Chemicals Evaluated for Carcinogenic Potential provides an overview of the compounds evaluated for carcinogenicity by the Health Effects Division of the Office of Pesticide Programs.

NOTE: As new information becomes available, the list may become out-of-date. Therefore, it should not be used as the sole reference regarding the carcinogenic potential for a pesticide. EPA intends to update the list each year to include new evaluations or re-evaluations.

How does EPA review pesticides for potential carcinogenicity?

The Health Effects Division of the Office of Pesticide Programs performs an independent review of studies conducted in mice and rats to evaluate the carcinogenic potential of pesticides. The results of the independent review are peer-reviewed by the Cancer Assessment Review Committee. This committee recommends a cancer classification. The classification will determine how the Agency regulates the pesticide and will include methods for quantification of human risk. In some cases, EPA also requests review by the FIFRA Scientific Advisory Panel.

What factors does EPA consider in its review of cancer risk?

When assessing possible cancer risk posed by a pesticide, EPA considers how strongly carcinogenic the chemical is (its potency) and the potential for human exposure. The pesticides are evaluated not only to determine if they cause cancer in laboratory animals, but also as to their potential to cause human cancer. For any pesticide classified as a potential carcinogen, the risk would depend on the extent to which a person might be exposed (how much time and to what quantity of the pesticide). The factors considered include short-term studies, long-term cancer studies, mutagenicity studies, and structure activity concerns. (The term “weight-of-the-evidence” is used in referring to such a review. This means that the recommendation is not based on the results of one study, but on the results of all studies that are available.)

When does EPA review pesticides for potential carcinogenicity?

EPA reviews studies submitted when a pesticide is proposed for registration. Studies are required in two species (mice and rats) and two sexes (males and females). These studies are required for all pesticides used on food and some non-food pesticides that could lead to long-term exposures in humans. These studies may be reviewed again when a pesticide undergoes reregistration and the cancer classification may be reevaluated, particularly if new studies have been submitted.

Why are there several different cancer classifications in the list?

EPA's guidelines for evaluating the potential carcinogenicity of chemicals have been updated over the years to reflect increased understanding of ways chemicals may cause cancer. The current guidelines call for greater emphasis on characterization discussions for hazard, dose-response assessment, exposure assessment, and risk characterization, as well as the use of mode of action in the assessment of potential carcinogenesis.

EPA does not have the resources to re-evaluate every chemical to determine how it would be described under new guidelines, and there is no reason to re-evaluate chemicals unless there is some new information that could change the basic understanding of that chemical.

How have the guidelines changed?

EPA issued its first set of principles to guide evaluation of human cancer potential in1976. In 1986, EPA issued updated guidance, which included a letter system (A-E) for designating degree of carcinogenic potential. In the 1986 guidelines, hazard identification and the weight-of evidence process focused on tumor findings. The human carcinogenic potential of agents was characterized by a six-category alphanumeric classification system (A, B1, B2, C, and D). In 1996, EPA released "Proposed Guidelines for Carcinogen Risk Assessment," which used descriptive phrases rather than the alphanumeric classification to classify carcinogenic potential. In the 1996 classification structure, increased emphasis was placed on discussing characterization of hazard, dose-response, and exposure assessments. The hazard and weight of evidence process embraced an analysis of all relevant biological information and emphasized understanding the agent's mode of action in producing tumors to reduce the uncertainty in describing the likelihood of harm. By 1999, the science related to carcinogens had advanced significantly. EPA issued draft guidelines that continued the greater emphasis on characterization discussions for hazard, dose-response assessment, exposure assessment, risk characterization and the use of mode of action in the assessment of potential carcinogenesis. In addition, the guidelines included consideration of risk to children, as well as addressing other issues such as nuances related to the amount and adequacy of data on a chemical.

In March, 2005, EPA released its final *Guidelines for Carcinogen Risk Assessment* (EPA/630/P-03/001B). These guidelines represent the culmination of a long development process, replacing EPA's original cancer risk assessment guidelines (1986) and its interim final guidelines (1999). http://www.epa.gov/cancerguidelines/

How do the different designations compare?

The short answer is that they cannot be directly compared. Each system designation refers to the reviews and criteria it contains. A substance that is, for example, a “C” in the 1986 system may not be directly translatable to any particular category in the later systems. The designation for any substance must be considered in the context of the system under which it was reviewed.

A list of the descriptors from the various classification systems and their definitions are given on the following pages.

Carcinogenicity Classification of Pesticides:
Derivation and Definition of Terms

CLASSIFICATION-2005

The following descriptors from the 2005 Guidelines for Carcinogen Risk Assessment can be used as an introduction to the weight of evidence narrative in the cancer risk assessment. The examples presented in the discussion of the descriptors are illustrative. The examples are neither a checklist nor a limitation for the descriptor. The complete weight of evidence narrative, rather than the descriptor alone, provides the conclusions and the basis for them.

CARCINOGENIC TO HUMANS. This descriptor indicates strong evidence of human carcinogenicity. It covers different combinations of evidence.

- This descriptor is appropriate when there is convincing epidemiologic evidence of a causal association between human exposure and cancer.
- Exceptionally, this descriptor may be equally appropriate with a lesser weight of epidemiologic evidence that is strengthened by other lines of evidence. It can be used when all of the following conditions are met: (a) there is strong evidence of an association between human exposure and either cancer or the key precursor events of the agent's mode of action but not enough for a causal association, and (b) there is extensive evidence of carcinogenicity in animals, and (c) the mode(s) of carcinogenic action and associated key precursor events have been identified in animals, and (d) there is strong evidence that the key precursor events that precede the cancer response in animals are anticipated to occur in humans and progress to tumors, based on available biological information. In this case, the narrative includes a summary of both the experimental and epidemiologic information on mode of action and also an indication of the relative weight that each source of information carries, e.g., based on human information, and based on limited human and extensive animal experiments.

LIKELY TO BE CARCINOGENIC TO HUMANS. This descriptor is appropriate when the weight of the evidence is adequate to demonstrate carcinogenic potential to humans but does not reach the weight of evidence for the descriptor "Carcinogenic to Humans." Adequate evidence consistent with this descriptor covers a broad spectrum. As stated previously, the use of the term "likely" as a weight of evidence descriptor does not correspond to a quantifiable probability. The examples below are meant to represent the broad range of data combinations that are covered by this descriptor; they are illustrative and provide neither a checklist nor a limitation for the data that might support use of this descriptor.
Moreover, additional information, e.g., on mode of action, might change the choice of descriptor for the illustrated examples. Supporting data for this descriptor may include:

- an agent demonstrating a plausible (but not definitively causal) association between human exposure and cancer, in most cases with some supporting biological, experimental evidence, though not necessarily carcinogenicity data from animal experiments;

- an agent that has tested positive in animal experiments in more than one species, sex, strain, site, or exposure route, with or without evidence of carcinogenicity in humans;
- a positive tumor study that raises additional biological concerns beyond that of a statistically significant result, for example, a high degree of malignancy, or an early age at onset;
- a rare animal tumor response in a single experiment that is assumed to be relevant to humans; or
- a positive tumor study that is strengthened by other lines of evidence, for example, either plausible (but not definitively causal) association between human exposure and cancer or evidence that the agent or an important metabolite causes events generally known to be associated with tumor formation (such as DNA reactivity or effects on cell growth control) likely to be related to the tumor response in this case.

SUGGESTIVE EVIDENCE OF CARCINOGENIC POTENTIAL. This descriptor of the database is appropriate when the weight of evidence is suggestive of carcinogenicity; a concern for potential carcinogenic effects in humans is raised, but the data are judged not sufficient for a stronger conclusion. This descriptor covers a spectrum of evidence associated with varying levels of concern for carcinogenicity, ranging from a positive cancer result in the only study on an agent to a single positive cancer result in an extensive database that includes negative studies in other species. Depending on the extent of the database, additional studies may or may not provide further insights. Some examples include:

- a small, and possibly not statistically significant, increase in tumor incidence observed in a single animal or human study that does not reach the weight of evidence for the descriptor "Likely to Be Carcinogenic to Humans." The study generally would not be contradicted by other studies of equal quality in the same population group or experimental system (see discussions of *conflicting evidence* and *differing results*, below);
- a small increase in a tumor with a high background rate in that sex and strain, when there is some but insufficient evidence that the observed tumors may be due to intrinsic factors that cause background tumors and not due to the agent being assessed. (When there is a high background rate of a specific tumor in animals of a particular sex and strain, then there may be biological factors operating independently of the agent being assessed that could be responsible for the development of the observed tumors.) In this case, the reasons for determining that the tumors are not due to the agent are explained;
- evidence of a positive response in a study whose power, design, or conduct limits the ability to draw a confident conclusion (but does not make the study fatally flawed), but where the carcinogenic potential is strengthened by other lines of evidence (such as structure-activity relationships); or
- a statistically significant increase at one dose only, but no significant response at the other doses and no overall trend.

INADEQUATE INFORMATION TO ASSESS CARCINOGENIC POTENTIAL. This descriptor of the database is appropriate when available data are judged inadequate for applying one of the other descriptors. Additional studies generally would be expected to provide further insights. Some examples include:

- little or no pertinent information;
- conflicting evidence, that is, some studies provide evidence of carcinogenicity but other studies of equal quality in the same sex and strain are negative. Differing results, that is, positive results in some studies and negative results in one or more different experimental

systems, do not constitute *conflicting evidence,* as the term is used here. Depending on the overall weight of evidence, differing results can be considered either suggestive evidence or likely evidence; or
- negative results that are not sufficiently robust for the descriptor, "Not Likely to Be Carcinogenic to Humans."

NOT LIKELY TO BE CARCINOGENIC TO HUMANS. This descriptor is appropriate when the available data are considered robust for deciding that there is no basis for human hazard concern. In some instances, there can be positive results in experimental animals when there is strong, consistent evidence that each mode of action in experimental animals does not operate in humans. In other cases, there can be convincing evidence in both humans and animals that the agent is not carcinogenic. The judgment may be based on data such as:

- animal evidence that demonstrates lack of carcinogenic effect in both sexes in well-designed and well-conducted studies in at least two appropriate animal species (in the absence of other animal or human data suggesting a potential for cancer effects),
- convincing and extensive experimental evidence showing that the only carcinogenic effects observed in animals are not relevant to humans,
- convincing evidence that carcinogenic effects are not likely by a particular exposure route (see Section 2.3), or
- convincing evidence that carcinogenic effects are not likely below a defined dose range.

A descriptor of "not likely" applies only to the circumstances supported by the data. For example, an agent may be "Not Likely to Be Carcinogenic" by one route but not necessarily by another. In those cases that have positive animal experiment(s) but the results are judged to be not relevant to humans, the narrative discusses why the results are not relevant.

MULTIPLE DESCRIPTORS. More than one descriptor can be used when an agent's effects differ by dose or exposure route. For example, an agent may be "Carcinogenic to Humans" by one exposure route but "Not Likely to Be Carcinogenic" by a route by which it is not absorbed. Also, an agent could be "Likely to Be Carcinogenic" above a specified dose but "Not Likely to Be Carcinogenic" below that dose because a key event in tumor formation does not occur below that dose.

CLASSIFICATION -1999 Draft

The terms used to describe carcinogenic potential in the July 1999 "Review Draft of the Guidelines for Carcinogen Risk Assessment" are listed and defined as follows:

CARCINOGENIC TO HUMANS. This descriptor is appropriate when there is convincing epidemiologic evidence demonstrating causality between human exposure and cancer. This descriptor is also appropriate when there is an absence of conclusive epidemiologic evidence to clearly establish a cause and effect relationship between human exposure and cancer, but there is compelling evidence of carcinogenicity in animals and mechanistic information in animals and humans demonstrating similar mode(s) of carcinogenic action. It is used when all of the following conditions are met:

- There is evidence in a human population(s) of association of exposure to the agent with cancer, but not enough to show a causal association, and
- There is extensive evidence of carcinogenicity, and
- The mode(s) of carcinogenic action and associated key events have been identified in animals, and
- The keys events that precede the cancer response in animals have been observed in the human population(s) that also shows evidence of an association of exposure to the agent with cancer.

LIKELY TO BE CARCINOGENIC TO HUMANS. This descriptor is appropriate when the available tumor effects and other key data are adequate to demonstrate carcinogenic potential to humans. Adequate data are within a spectrum. At one end is evidence for an association between human exposure to the agent and cancer and strong experimental evidence of carcinogenicity in animals; at the other, with no human data, the weight of experimental evidence shows animal carcinogenicity by a mode or modes of action that are relevant or assumed to be relevant to humans.

SUGGESTIVE EVIDENCE OF CARCINOGENICITY, BUT NOT SUFFICIENT TO ASSESS HUMAN CARCINOGENIC POTENTIAL. This descriptor is appropriate when the evidence from human or animal data is suggestive of carcinogenicity, which raises a concern for carcinogenic effects but is judged not sufficient for a conclusion as to human carcinogenic potential. Examples of such evidence may include: a marginal increase in tumors that may be exposure-related, or evidence is observed only in a single study, or the only evidence is limited to certain high background tumors in one sex of one species. Dose-response assessment is not indicated for these agents. Further studies would be needed to determine human carcinogenic potential.

DATA ARE INADEQUATE FOR AN ASSESSMENT OF HUMAN CARCINOGENIC POTENTIAL. This descriptor is used when available data are judged inadequate to perform an assessment. This includes a case when there is a lack of pertinent or useful data or when existing evidence is conflicting, e.g., some evidence is suggestive of carcinogenic effects, but other equally pertinent evidence does not confirm a concern.

NOT LIKELY TO BE CARCINOGENIC TO HUMANS. This descriptor is used when the available data are considered robust for deciding that there is no basis for human hazard concern. The judgment may be based on:

- Extensive human experience that demonstrates lack of carcinogenic effect (e.g., phenobarbital).
- Animal evidence that demonstrates lack of carcinogenic effect in at least two well- designed and well-conducted studies in two appropriate animal species (in the absence of human data suggesting a potential for cancer effects).
- Extensive experimental evidence showing that the only carcinogenic effects observed in animals are not considered relevant to humans (e.g., showing only effects in the male rat kidney due to accumulation of alpha$_{2u}$-globulin).
- Evidence that carcinogenic effects are not likely by a particular route of exposure.
- Evidence that carcinogenic effects are not anticipated below a defined dose range.

CLASSIFICATION-1996

In April 1996, EPA released the "Proposed Guidelines for Carcinogen Risk Assessment." This scheme varied from the earlier 1986 scheme in that it used descriptors rather than letters to classify carcinogenic potential. The descriptors are:

KNOWN/LIKELY. This category of descriptors is appropriate when the available tumor effects and other key data are adequate to convincingly demonstrate carcinogenic potential for humans.

CANNOT BE DETERMINED. This category of descriptors is appropriate when available tumor effects or other key data are suggestive or conflicting or limited in quantity and, thus, are not adequate to convincingly demonstrate carcinogenic potential for humans. In general, further agent specific and generic research and testing are needed to be able to describe human carcinogenic potential.

NOT LIKELY. This is the appropriate descriptor when experimental evidence is satisfactory for deciding that there is no basis for human hazard concern, as follows (in the absence of human data suggesting a potential for cancer effects).

CLASSIFICATION -1986

The following cancer classification scheme was first introduced in 1986. It was used until 1996.

GROUP A-HUMAN CARCINOGEN. This group is used only when there is sufficient evidence from epidemiologic studies to support a causal association between exposure to the agents and cancer.

GROUP B-PROBABLE HUMAN CARCINOGEN. This group includes agents for which the weight of evidence of human carcinogenicity based on epidemiologic studies is "limited" and also includes agents for which the weight of evidence of carcinogenicity based on animal studies is "sufficient." The group is divided into two subgroups. **Group B1** is reserved for agents for which there is limited evidence of

carcinogenicity from epidemiologic studies. **Group B2** is used for Agents for which there is "sufficient: evidence from animal studies and for which there is “inadequate evidence" or "no data" from epidemiologic studies.

GROUP C-POSSIBLE HUMAN CARCINOGEN. This group is used for agents with limited evidence of carcinogenicity in animals in the absence of human data.

GROUP D-NOT CLASSIFIABLE AS TO HUMAN CARCINOGENICITY. This group is generally used for agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.

GROUP E-EVIDENCE OF NON-CARCINOGENICITY FOR HUMANS. This group is used for agents that show no evidence for carcinogenicity in at least two adequate animal tests in different species or in both adequate epidemiologic and animal studies.

OTHER DEFINITIONS
Quantification of Cancer Risk - Carcinogenic Potency Factor (Q_1*)

Q_1 STAR (Q_1*) - In the classification of human or probable-human carcinogens, mathematical models are used to estimate an upper-bound excess cancer risk associated with lifetime ingestion in the diet. The data used in these estimates usually come from lifetime exposure studies in animals. The USEPA generally uses the linearized multistage model for its cancer risk assessment. This model fits linear dose-response curves to low doses and is consistent with a no-threshold model of carcinogenesis, i.e., exposure to even a very small amount of the substance produces a finite increased risk of cancer.

The linearized multistage model uses dose-response data from the most appropriate carcinogenic study to calculate a carcinogenic potency factor (q_1*) for humans. The q_1* is then used to determine the concentrations of the chemical in the diet that are associated with theoretical upperbound excess lifetime cancer risks of 1 in 10,000, 1 in 100,000, and 1 in 1,000,000 (10^{-4}, 10^{-5}, 10^{-6} respectively) individuals over a lifetime of exposure.

Mode of Action (MOA) - The key cellular and biochemical events that have to happen for a biological effect to develop. Mode of action is contrasted with mechanism of action which is a more complete understanding of the step by step pathway leading to a biological effect. Some established MOAs include:

Androgen Dependent - The chemical disrupts the normal levels of reproductive hormones (e.g., testosterone, luteinizing hormone) which in turn stimulates the target tissue (e.g., Leydig cells, testicular tissue) to divide which may lead to hyperplasia and neoplasia. For agents to pose a hazard to humans by this MOA, sufficient exposure levels need to be encountered which produce the same level of biological effect as seen in rodents. This is consistent with the MOA for Leydig cell tumorigenesis.

Cytotoxicity and Regenerative Proliferation - Continuous exposure to a chemical or its metabolite causes persistent cell killing which in turn may result in a persistent regenerative proliferative response in the damaged tissue. For irreversible tissue alterations to occur in humans, including cancer by this mode of action, a sufficient exposure must be encountered over a prolonged period.

Mitogenesis - Mitogenic chemicals act by promoting the clonal expansion of preneoplastic cells by stimulating cell proliferation. This mode of action is frequently found in the rodent liver where it is generally associated with an increase in metabolizing enzymes. A mitogenic chemical stimulates cell proliferation in the target organ without obvious cytotoxicity or cell death. Another important feature of this MOA is that the mitogenic effect is not persistent over time; instead it is resolved and then is manifested within proliferative foci which are considered preneoplastic lesions. Through continuous exposure, it is these preneoplastic lesions that develop into tumors. At this time, the adverse health effects caused by this MOA are presumed to be relevant to humans.

Mutagenesis - The chemical or a metabolite has the ability to react with or bind DNA in a manner that causes mutations. It is usually positive in multiple test systems for different genetic endpoints (particularly gene mutations and structural chromosome aberrations) and in tests performed *in vivo* and *in vitro*. Adverse health effects in rodents from these chemicals are considered relevant for human health risk.

Neuroendrocrine Disruption - Chemicals that disrupt hypothalamic control of pituitary function leading to a decrease in hormone release (e.g., luteinizing hormone) and the disruption of the ovarian cycle. This may result in an increase in cell proliferation in the mammary gland due to a hyperstimulation by estrogen. In the case of chloro-s-triazines, this neuroendocrine MOA is not considered relevant to humans because it depends on a rodent specific reproductive process.

PPAR-alpha Agonism - Chemicals that bind to and activate the Peroxisome Proliferator-Activated Receptor (PPAR) stimulate biological responses in the liver (e.g., peroxisome proliferation, induction of lipid metabolizing enzymes, oxidative stress, and hepatocyte mitogenesis). Activation of PPAR–alpha results in an increase in cell proliferation and clonal expansion of preneoplastic foci in the liver. While the human relevance of this MOA has not been definitively determined, most of the evidence indicates that this mode of action is not operative in the human liver.

Thyroid Hormone Disruption - Disruption of normal levels of thyroid hormones may lead to an increase of thyroid stimulating hormone (TSH) which results in an increase in cell proliferation of the thyroid gland. If exposure is continuous in the animal, thyroid follicular cell tumors can potentially develop. However, the development of thyroid cancer by this mode of action in humans is considered unlikely since prolonged stimulation of the thyroid gland by TSH has not been associated with tumorigenesis in humans. However, this MOA is relevant as an indicator for potential noncancer health effects (e.g., goiter, neurodevelopmental, etc) due thyroid disruption in humans.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND
POLLUTION PREVENTION

September 25, 2019

MEMORANDUM

SUBJECT: **Acute and Chronic Reference Doses (RfDs) Established by the Office of Pesticide Programs**

FROM: Gregory Akerman, Chief
Science Information Management Branch
Health Effects Division
Office of Pesticide Programs

TO: Division Directors AD, BPPD, EFED, FEAD, HED, PRD AND RD

Attached is a summary table of the acute and chronic references doses established by the Office of Pesticide Programs (OPP) for dietary risk assessments.

The table includes only those chemicals that have been reviewed by the Health Effects Division (HED) from July 1997 through mid-August 2019. As new chemicals are reviewed by HED (or chemicals reviewed prior to July 1997 are re-reviewed), they will be included in this list.

For many of the chemicals, when appropriate, an additional acute reference dose is established for specific sub-populations (e.g., Infants and Children, Females age 13 through 49, Adults age 50 through 99, etc.). A similar division for the chronic or steady-state reference dose is also made, when appropriate, for a limited number of chemicals.

This table is updated annually. If further information is required, please contact Brenda May:
Phone - 703-308-6175 or e-mail - may.brenda@epa.gov.

Acute and Chronic Reference Doses (RfDs) Established by the Office of Pesticide Programs

Science Information Management Branch
Health Effects Division
Office of Pesticide Programs
U. S. Environmental Protection Agency

BACKGROUND

What is this list?

The acute and chronic References Doses established by the Health Effects Division (HED) of the Office of Pesticide Programs (OPP) for conducting dietary risk assessments are presented in this list. Pesticide risk assessment is performed in OPP to support the registration of new products and new uses or re-registration of products which are already on the market. The risk assessment approach may vary depending on how the pesticide product will be used (e.g., food-use versus non-food-use products; products used only commercially versus those used in homes, etc.). Risk assessments conducted for food-use chemicals include acute and chronic dietary exposure scenarios. The list includes only those chemicals reviewed by HED from July 1997 through mid-August 2019. As new chemicals are reviewed by HED (or chemicals reviewed prior to July 1997 are re-reviewed), they will be included in this list.

What is a Reference Dose?

A reference dose, or RfD, is the toxicity value used most often in evaluating noncarcinogenic effects resulting from exposure to pesticide chemicals. An acute reference dose (Acute RfD) is defined as an estimate of a single exposure level for the human population that is likely to be without appreciable risk of adverse effects during a single day. A chronic reference dose (Chronic RfD) is defined as an estimate of a daily exposure level for the human population, which is likely to be without appreciable risk of deleterious health effects during a lifetime. Chronic RfDs are specifically developed to be protective of long-term exposure to pesticide chemicals. The RfD is generally expressed in units of milligrams per kilogram of body weight per day (mg/kg/day).

Why there are different RfDs in the list?

Typically, RfDs are established for dietary exposure scenarios suitable for the general population including infants and children. For many of the chemicals, when appropriate, an additional acute reference dose is established for specific sub-populations (e.g., Infants and Children, Females age 13 through 49, Adults age 50 through 99, etc.). A similar division for the chronic or steady-state reference dose is also made, when appropriate, for a limited number of chemicals.

What data does EPA use to establish the RfDs?

The entire toxicology database submitted to OPP for a particular pesticide (in support of registration/registration review) is considered when establishing the RfDs. OPP's toxicology data requirements are described in 40 CFR Part 158 ([HYPERLINK "http://www.ecfr.gov/cgi-bin/text-idx?SID=8ae600b5de5be41ee3e233f17e5f77fa&mc=true&node=sp40.24.158.f&rgn=div6"]).
For a food-use chemical, this database typically consists of the following studies: acute battery; acute and subchronic neurotoxicity studies in rodents, subchronic (90-day) feeding studies in rodents and nonrodents; subchronic dermal toxicity study; chronic feeding studies in rodents; mutagenicity battery; carcinogenicity studies in two rodent species, prenatal developmental toxicity studies in rodents and

nonrodents, a two-generation reproduction study in rodents and immunotoxicity study in rodents. Other conditionally required studies may also be available for consideration such as: dermal penetration; subchronic inhalation; acute and subchronic delayed neurotoxicity in hens; and/or a developmental neurotoxicity study in rodents. Conditionally required studies are triggered by some special characteristic of the pesticide (e.g., its chemical class), by potential use and exposure patterns (e.g., residential uses), or by the results of the routinely required studies.

What factors does EPA consider when establishing the RfD?
Establishing the RfD includes hazard identification and dose-response assessment. Hazard identification is the process of identifying the potential adverse health effects that could occur as a result of various types of exposure to a particular pesticide. Dose-response assessment is the process of quantitatively evaluating toxicity data and characterizing the relationship between the dose and the incidence of adverse health effects in the exposed population. From the quantitative dose-response relationship, toxicity values are derived that are used to estimate the likelihood of adverse effects occurring in humans. In the development of the RfDs, all toxicity studies submitted to OPP are considered during this evaluation as well as any public literature or other sources of supporting information available for the chemical and/or related chemicals. When several studies are available for consideration, (i.e., dosing duration and route of administration in the study are suitable to represent the exposure scenario), a comparison of results across all of the studies should be made to determine the critical effect of concern for the exposure scenario. The term weight-of-evidence is used in referring to such a review. This means that the RfD is not based on the results of one study, but on the results of all studies that are available.

How is the RfD calculated?
A **NOAEL** (No-Observed-Adverse-Effect-Level) is defined as an exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects between the exposed population and its appropriate controls; some effects may be produced at this level, but they are not considered to be adverse, nor precursors to a specific adverse effects. The NOAEL is expressed in units of milligram per kilogram of body weight per day (mg/kg/day).

A **LOAEL** (Lowest-Observed-Adverse-Effect-Level) is defined as the lowest exposure level at which there is statistically or biologically significant increases in frequency and severity of adverse effects between the exposed population and its appropriate control group. The LOAEL is expressed in units of milligram per kilogram of body weight per day (mg/kg/day).

Endpoints for RfD: the endpoint is a brief description of the nature of the adverse effect(s) upon which the LOAEL is based. It may describe toxicity observed to a specific target organ (e.g., liver necrosis), or it may describe abnormal readings to a biological or chemical assay (e.g. alteration in white blood cell count).

Uncertainty Factors: The RfD is derived from the NOAEL (or LOAEL) for the critical toxic effect by consistent application of uncertainty factors (UFs).

$$\text{RfD} = \frac{\text{NOAEL}}{\text{UF}}$$

The uncertainty factors generally consist of multiple of 10 (although values less than 10 are sometimes used), with each factor representing a specific area of uncertainty inherent in the extrapolation from available data. The bases for application of different uncertainty factors are:

< **Interspecies uncertainty factor** (UF_A) which is intended to account for the uncertainty involved in extrapolating from animal data to humans.

< **Intraspecies uncertainty factor** (UF_H) which is intended to account for the potential variation in sensitivity among the members of the human population, including children.

< **Uncertainty factor to extrapolate from subchronic to chronic data** (UF_S), if deriving a chronic RfD.

< **Uncertainty factor to extrapolate from the LOAEL to a (surrogate) NOAEL** (UF_L), if no appropriate NOAEL can be identified in the toxicology database.

< **Database uncertainty factor** (UF_{DB}) which is intended to account for the absence of key data in the database for a given chemical.

Additional Definitions

The Bench Mark Dose Level or **$BMDL_{10}$** was put forth as an alternative to the NOAEL and LOAEL because it provides a more robust reference point as the first step in the dose-response assessment. The BMD is based on a mathematical model fit to the experimental data within the observed range and estimates the dose that causes a low but measurable response, typically chosen at 10% above the control.

Physiologically based pharmacokinetic (**PBPK**) modeling is a mathematical modeling technique for predicting the absorption, distribution, metabolism and excretion (ADME) of synthetic or natural chemical substances in humans and other animal species.

Steady State refers to a biological response in certain chemical classes wherein a dynamic equilibrium occurs for the endpoint of concern after repeated exposure (e.g., cholinesterase inhibition in organophosphates).

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Message

From: Corbin, Mark [Corbin.Mark@epa.gov]
Sent: 7/26/2019 7:30:49 PM
To: OPP EFED Managers [OPP_EFED_Managers@epa.gov]
Subject: USGS Water Method
Attachments: USGS Pesticide Method Tabular Summary.docx

All

Attached is a summary document from USGS that serves as a follow-up for you on the effort we went through several weeks ago to provide a list of priority pesticides for USGS to maintain on their multi-residue method. As you may recall, USGS is going to wind down the NAWQA program and while some monitoring is likely to continue going forward (Cycle 3 ends sometime in 2022) the number of sites and analytes is going to be reduced.

The good news is that we have pretty good concurrence with USGS on analytes to keep. In total, EPA and USGS agreed on 72 pesticides to remain on the schedule. These can be found in Table 1 in the attached document.

For those that USGS does not plan to keep them on the method but will hold them in reserve as possible replacements. They still need to do a bit of method development work and on occasion they find that the analytical performance of individual pesticides is not good and in those cases they will draw from the pesticides in Table 4 with an emphasis on the Tier 1 (higher priority) chemicals. When that happens they indicated that they would re-engage with us on which, if any, of those chemicals we would want to add.

Finally, Tables 2 and 3 summarize in more detail their position on pesticides EPA recommended be dropped or added that they did not include. Having monitoring data to support Trend Analysis is a key task for them going forward they decided to keep a number of pesticides we suggested be dropped because these compounds have been frequently detected and will support their work.

Let me know if you have any questions and if there is any additional interactions with USGS on this issue I will keep you posted.

mark

ED_005427A_00004695-00001

ED_005427A_00004696-00001

Message

From: Arnold, Elyssa [Arnold.Elyssa@epa.gov]
Sent: 10/1/2019 11:35:41 AM
To: Blankinship, Amy [Blankinship.Amy@epa.gov]
Subject: RE: Episodic Telework 10/1/19

Ok, thanks, I'll check in with Steve this morning.

From: Blankinship, Amy <Blankinship.Amy@epa.gov>
Sent: Tuesday, October 01, 2019 7:33 AM
To: Arnold, Elyssa <Arnold.Elyssa@epa.gov>
Subject: RE: Episodic Telework 10/1/19

Okay. Concerning the imazamox, I asked Steve to work with Jim on aldicarb PCA and any methomyl work as a priority this week for ERB2 stuff (he has 2 review panels this week as well) since Jim will be on leave starting Oct 4-15th. So I don't know if you want to look at imazamox first.

Also for pyridate, I think we need to carefully consider to what extent we incorporate **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

From: Arnold, Elyssa <Arnold.Elyssa@epa.gov>
Sent: Tuesday, October 01, 2019 6:54 AM
To: Blankinship, Amy <Blankinship.Amy@epa.gov>
Subject: RE: Episodic Telework 10/1/19

Hi Amy,

I'm online and teleworking until 2:30. I have meetings on my calendar from 8-2:30, including at noon, so I don't expect to get too much else done today but I hope to make some edits to the ICCVAM manuscript, draft the fenpyroximate NU emails, and read through the PCA/PCT white paper draft. I am also waiting to get the imazamox sorghum and pyridate assessments from Steve for my review.

I can talk on Skype or phone for our meeting at 8:00. I'm at **Ex. 6 PP – personal phone**

Thanks,
Elyssa

From: Blankinship, Amy <Blankinship.Amy@epa.gov>
Sent: Thursday, September 26, 2019 2:53 PM
To: Arnold, Elyssa <Arnold.Elyssa@epa.gov>
Subject: RE: Episodic Telework 10/1/19

Okay. I approve this telework. Thank you.

Amy

From: Arnold, Elyssa <Arnold.Elyssa@epa.gov>
Sent: Thursday, September 26, 2019 2:47 PM

To: Blankinship, Amy <Blankinship.Amy@epa.gov>
Subject: Episodic Telework 10/1/19

Hi Amy,

As we discussed, I plan to use episodic telework on Tuesday 10/1/19 until 2:30 PM. I am taking sick leave from 2:30-4:00

Ex. 6 Personal Privacy (PP)

Thanks,
Elyssa

Elyssa Arnold, Risk Assessment Process Leader
Environmental Risk Branch 2
Environmental Fate & Effects Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 347-0236
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insects

MDPI

Article

Comprehensive Survey of Area-Wide Agricultural Pesticide Use in Southern United States Row Crops and Potential Impact on Honey Bee Colonies

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Received: 18 September 2018; Accepted: 27 August 2019; Published: 2 September 2019

Abstract: Honey bees forage across a large area, continually scouting the local landscape for ephemeral food resources. Beekeepers often rely on flowering plants in and around irrigated farmland to maintain their colonies during dry seasons, despite the potential risk of pesticide exposure. Recent declines in pollinator abundance and diversity have focused attention on the role of pesticides and their effects on honey bee health. This investigation examined two types of landscapes within a two-mile (3.2 km) radius of honey bee colonies: an intensive agricultural setting and a rural setting without intensive agriculture. More than 10,000 acres of agricultural land was surveyed to quantify the area of cultivated crops and the area treated with pesticides, including seed treatments and foliar applications of insecticides. Samples of honey, bee bread (stored pollen), beeswax, and adult bees were collected from hives in both landscape types and screened for pesticide residues to determine if foraging bees were transporting pesticides to hives. Some samples of bee bread and honey did contain pesticide residues, but these were below known lethal dose (LD_{50}) levels for honey bees. Beeswax samples contained the highest levels of contamination, but most were still relatively low. Samples were screened for 174 common agricultural pesticides and metabolites, but only 26 compounds were detected during the two-year study. These included one defoliant, one insect growth regulator, five herbicides, six fungicides, six insecticides never used in beekeeping, and five insecticides/miticides and their metabolites, which are used in beekeeping and for various other agricultural purposes, as well as two miticides exclusively used by beekeepers to control *Varroa destructor*. Bee colonies foraging in agricultural landscapes are potentially exposed to numerous pesticide applications. While the residues detected in this study did not pose an acute lethal risk to adult honey bees, this study did not measure sublethal effects on bee colony health or performance, which merit further investigation.

Keywords: Apoideae; honey bee; *Apis mellifera*; pesticide; neonicotinoid; agriculture; pollinator decline; landscape; crops

1. Introduction

Honey bees (*Apis meliffera* L.) are known to forage for food across an extensive landscape, up to three miles (5 km) or more from their hives [1]. While foraging distances are highly variable in different landscapes and in different seasons, as long as adequate resources are available, foragers tend to remain closer to their hives in order to conserve energy, within an average distance of about one mile (1.6 km) or less, and sometimes only a few hundred yards in agricultural settings with abundant food [2–4]. However, bees can range much farther for highly desirable food [5]. Honey bees exhibit preference for visiting flowers with high sugar content in the nectar, and will fly farther for higher quality forage, while bypassing lower quality forage nearby if the net caloric gain is greater [6]. Honey bees appear to be able to differentiate, and actively diversify their foraging, to compensate for protein deficiencies in dietary pollen [7,8]. Also, the floral resources available to bees are often ephemeral, with some species blooming for only a short time each season. For these reasons, bees continuously scout their territory to readily and efficiently exploit new sources of food before competitors [1].

The foraging activities of bee pollinators affect the continued survival of plant species as well as the genetic structure of distinct plant populations. Pollinator preferences have likely been a long-term driver of angiosperm speciation and evolution [9]. Both the long-range foraging habits of honey bees, and the relatively limited foraging range of solitary bee species, may be essential to the survival of plants in disturbed or fragmented habitats [10,11], such as those surrounding agricultural production areas. Small uncultivated areas within crop production landscapes can also serve as important refuge habitats for pollinators and other beneficial insects, as well as other wildlife species [12–14]. Many agricultural crops rely on insect pollination, either partially or completely, to ensure fruit and/or seed production [15]. Cereal grains such as corn, wheat, and rice are primarily wind-pollinated and do not require insect visits [16], although bees may sometimes collect their pollen for food [17]. Some large-scale commodity crops such as cotton and soybeans can be self-fertile and do not require insect pollination to produce yield, but there is some evidence that pollinator visits can increase yield production [18–21].

Commercial beekeepers often rely on irrigated farmland to sustain large numbers of honey bee colonies, and to produce surplus honey during dry periods, which would otherwise be a nectar dearth outside of an agricultural setting [22]. The amount of honey that these colonies can produce is affected by multiple factors that can determine nectar production, including cultivar variety, soil conditions, and weather [23,24]. While large-scale plantings of flowering crops can be significant nectar sources, bees in agricultural areas also greatly benefit from the presence of diverse wild flowers (i.e., weeds), which are also sustained on and around farms through dry conditions by crop irrigation. These plants can provide bees with additional pollen and nectar resources when crops may not be in bloom or when monocultures may not provide sufficient nutrition on their own [25,26]. Sponsler and Reed [27] reported that wax production and food accumulation were both positively correlated with proximity to crop land, as opposed to urban area, forest, or grassland. While intensive agricultural landscapes can greatly benefit honey bee colonies, beekeepers who maintain colonies in these areas must also be constantly wary of pesticides that can negatively affect their bees.

When foraging in an agricultural landscape, honey bees are potentially exposed to numerous insecticides, fungicides, herbicides, and other agricultural chemicals. Recent widespread declines in bee populations across the country have focused public scrutiny on the negative effects that agricultural chemicals may have on pollinator health [28,29]. Due to their widespread use in agriculture, especially as a pre-planting seed treatment, the neonicotinoid group has received particular attention because of suspected associations with declines in honey bee populations and health. These systemic insecticides can be translocated through the plant and into pollen and nectar, which becomes available to pollinating insects in sublethal quantities, which can negatively affect the behavior, reproduction, and survival of honey bees [30–33] and bumble bees [34,35].

The mid-South region of the United States has abundant agriculture as well as an abundance of diverse agricultural pests. Intensive crop production involves the diligent and routine scouting of

fields for insects, weeds, and diseases, which are conventionally managed with a variety of insecticides, herbicides, and fungicides. Pesticide application decisions are routinely based on monitoring by crop consultants who determine appropriate pest control strategies. Honey bees from colonies in agricultural areas that are exposed to pesticides may transfer these compounds into the hive, potentially affecting the entire colony. When principles of integrated pest management (IPM) are followed, and pesticides are applied only on an as-needed basis, pests can be controlled while reducing off-target exposure to pollinators and other beneficial arthropods [36]. However, even with careful use, some level of exposure will likely be inevitable.

Pollen and/or bee bread collected from hives in numerous locations in France revealed contamination from multiple pesticides [37]. Bernal et al. [38] evaluated the pesticide residues in stored pollen from honey bee colonies in Spain, and found varying concentrations of numerous residues in both spring-collected and fall-collected samples. Mullin et al. [39] analyzed samples of beeswax, pollen, and honey bees from across North America, and detected 121 pesticides and their metabolites, with most samples containing multiple residues. In all of these studies, among the most prevalent residues detected were products routinely applied to hives by beekeepers for the control of Varroa mites, although some of these products have other pest-control applications as well. In Canada, Codling et al. [40] reported the detection of neonicotinoid insecticides and their breakdown metabolites in honey, pollen, and honey bees, although concentrations in most samples did not approach oral LD_{50} values for honey bees. That investigation did not screen for other classes of pesticides.

The current study describes the potential chemical exposure within the foraging territory of bee colonies located in an agricultural setting in the southern United States. The study sites were selected to represent the diversity of mid-South agriculture as well as areas with little or no agriculture. The crops in the intensive agriculture area were primarily soybeans, rice, corn, and cotton, with a few other minor crops, which included grain sorghum and green beans. Growers utilize a diverse selection of pesticide products for conventional production in Arkansas and the mid-South region, including herbicides, fungicides, and insecticides (including neonicotinoids as both as seed-treatments and foliar applications). A detailed survey was conducted to determine which crops were grown, and which pesticides were applied, across the entire landscape within a two-mile radius around an apiary. Sample of bees, beeswax, honey, and pollen were also collected from hives and screened for the presence of pesticide residues to which worker bees may have been exposed during foraging activity, and may have been brought back to the hive in collected food.

2. Methods and Materials

The survey was conducted in Lonoke County, Arkansas, during the 2014 and 2015 growing seasons. An apiary ("High-Ag" site) was established in April 2014, in an area where more than 80% of the landscape was under cultivation using conventional agricultural crop production methods and pesticide use. This site was representative of conditions around honey bee colonies in agricultural areas in the region. Four bee colonies were established in new 10-frame Langstroth beehives (two deep hive bodies each), using wired-beeswax foundation. All the beehive equipment was purchased from The Walter T. Kelley Company (Clarkson, KY, USA). Hives were protected from drift on all sides by a tree line, but bees had easy flight access to extensive cultivated row crop landscape in all directions (Figure 1).

A second apiary ("Low-Ag" site) was established at the same time, with four colonies, using identical equipment from the same sources. The Low-Ag site was also in Lonoke County, approximately 20 miles (32 km) from High-Ag site. The Low-Ag landscape was composed primarily of native grasses and forbs, pasture land, woodland, and some commercial fish farms, but was not surrounded by intensive row crop production (Figure 2).

Figure 1. Aerial view of the High-Ag study site in Lonoke County, Arkansas. The star indicates the apiary location. The yellow circle indicates a one-mile radius from the beehives; the white circle indicates a two-mile radius from the hives; the blue line indicates the approximate area included in the survey. Landscape included the commercial production of soybeans, corn, rice, cotton, grain sorghum, and green beans, as well as commercial fish ponds, woodlands, grasslands, wetlands, and fallow fields. This site is representative of agricultural production land in this region (data: Google, Landsat/Copernicus, Maxar Technologies, US Geological Survey).

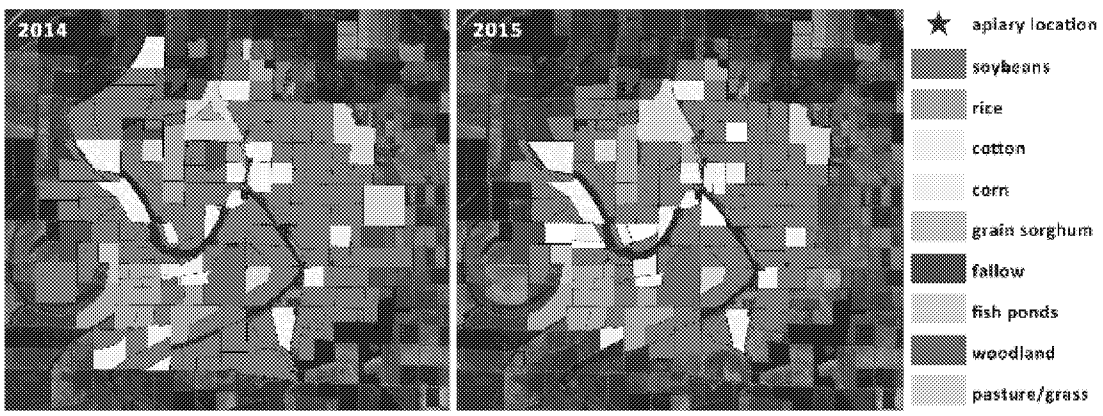

Figure 2. Land use by crop within the surveyed area around the High-Ag site during the 2014 and 2015 growing seasons. The survey area was slightly different between years due to changes in land use and an inability to contact farmers for interviews regarding all fields. However, general patterns of land use and crop production remained similar in the landscape around the apiary during both years.

The two sites were chosen for comparison because they were close together, with similar climate conditions, but surrounded by very different land use. Commercial beekeepers in the region favor

apiary locations adjacent to agricultural land for higher honey production over non-agricultural land, despite the risk of pesticide exposure [22].

In 2014, all the colonies in both locations were started from three-pound packages purchased from the same source. In April 2015, eight additional colonies were established at the High-Ag site from locally-sourced nucleus colonies, and transferred into new, identical hives from the same source, as in 2014.

All the colonies, both years, were initially provided with 1:1 (sugar:water) syrup ad libitum for 1 month to help them establish and produce fresh comb. After this initial period, colonies foraged within the surrounding landscape for all their nutritional needs. All the colonies were managed with standard practices, for normal honey production, with additional hive bodies added as necessary. Queen excluders were not used, so that brood nest expansion was unlimited. No varroa control products were applied in 2014 prior to hive product sampling. Thymol (Apiguard®, Vita (Europe) Ltd., Basingstoke, UK) was applied, following label instructions, after hive products were sampled in 2014. In 2015, all the new nucleus colonies had been treated with amitraz (Apivar®, Véto-pharma, Palaiseau, France) for early season Varroa mite control prior to our purchase of them. Thymol (Apiguard®) was applied to all the colonies on 20 August, according to label instructions, approximately 5 weeks prior to taking hive product samples.

A map was created of the area surrounding the High-Ag apiary, and all the agricultural fields within a 2-mile (3.2 km) radius of the apiary were defined and measured using ArcGIS software (Esri, Redlands, CA, USA). If fields extended beyond this radius, the acreage of the entire field was included. While the actual honey bee foraging territory is potentially much larger than the acreage surveyed, land-use and farming practices are fairly consistent throughout the area surrounding the study site; therefore, the surveyed area is representative of the conditions that foraging honey bees would encounter in the local landscape outside of the survey radius.

Each crop field within the High-Ag study site was visually inspected to determine which crops were planted for two growing seasons. Growers were personally contacted and surveyed regarding their application of insecticides on each field. The survey determined only the presence of compounds (active ingredients) and/or specific product names that were applied. Information on the application rates, number or timing of applications made to all fields, and methods of application were not collected. The information gathered was limited to that which was voluntarily supplied by growers. While this data is likely incomplete, it does represent a minimum indication of the presence of these compounds applied to this landscape. The use of insecticide seeds treatments at planting was noted, and included as an application. Herbicide applications were not included in the survey, but were likely applied to most fields as a standard practice. Particularly, glyphosate (Roundup®, Bayer Ag, Leverkusen, Germany) was assumed to have been applied to most crops with engineered tolerance (soybean, corn and cotton), except for rice, green beans, and grain sorghum.

A map of the Low-Ag landscape was also made, and land use was calculated. An extensive survey of landowners in this area was not conducted, because this area did not contain significant large-scale row crop acreage. The majority of the landscape was pasture and woodland, but also contained a small fruit and pecan operation, some home gardens, a small dairy farm, and some commercial fish farming within the bees' foraging range. While the fish farm could have been utilized as a water source by the bees, it is unlikely, as there were numerous fresh water sources (creeks and ponds) much closer to the apiary. Some soybean production was located approximately 2.5 miles (4 km) from the apiary, and an area of wheat was located approximately 1.5 miles (2.4 km) away, which was likely ignored by bees for lack of nectar. No other row-crop agriculture was located in the vicinity.

Samples were collected from bee hive products to determine if field-applied agricultural pesticides could be detected in beehives. Prior to colony installation in 2014, two samples of beeswax foundation were collected. Pieces of beeswax were sampled from 10 randomly selected sheets of wax foundation, which were part of a bulk purchase from which all the foundation used in the study originated. Additionally, two samples of adult bees were pooled from random packages at the time of colony

installation. Later in the season, additional samples were taken from hives in both study apiaries (High-Ag and Low-Ag) in 2014. These samples included newly drawn beeswax comb (not yet used for brood-rearing or food storage, removed avoiding the foundation wax), bee bread (stored pollen), and adult honey bees randomly collected from inside the hive. Each sample consisted of 3–4 g of material or bees. All the samples were collected with sterile instruments, immediately placed on ice in the field, and later stored at −12 °C. Samples were shipped frozen, with dry ice, to the USDA's National Science Laboratory in Gastonia, North Carolina, for their comprehensive apicultural pesticide screening. Sampling of live bees and hive products was repeated in 2015 only at the High-Ag site.

During 2014, samples for residue testing were collected on 6 August, and again on 24 September. On 6 August, samples of new beeswax, bee bread, and adult bees were collected from each of two hives at the High-Ag site and from each of two hives at the Low-Ag site. On 24 September, the sampling procedure was repeated from each of the same hives at both sites, with capped honey also collected from each of the same hives.

In 2015, samples of adult honey bees and beeswax from combs in nucleus colonies were collected when the colonies were initially established. However, these samples were accidently destroyed in shipment, and could not be analyzed for residue contaminants. Additional samples of hive products were collected on 29 September from 4 hives in the High-Ag area. The samples included new beeswax, bee bread, honey, and adult bees. Colonies in the Low-Ag area were not sampled in 2015, because none of the Low-Ag samples from 2014 contained detectable residues except for the new beeswax, which contained only very low levels. Resources were instead devoted to samples taken in the High-Ag apiary.

3. Results and Discussion

The survey of the High-Ag landscape included all the area within a two-mile radius of the apiary (8038 acres). If cultivated fields extended beyond this radius, the entire field was included. The total surveyed area under cultivation varied between 2014 (12,160 acres) and 2015 (10,063 acres). The total area of the survey was slightly different between years because of changes in land management, and an inability to contact some growers for interviews. The aerial map in Figure 1 shows the High-Ag area surveyed, in the context of its surrounding landscape. Crops in the High-Ag area included a predominant commercial production of soybeans, corn, rice, cotton, and grain sorghum, as well as small areas of green beans, some commercial fish farming, woodland, wetlands, pasture, and fallow fields, which are typical of this area. The maps in Figure 2 indicate the distribution of land use by crop around the High-Ag site for both years. Slight changes in land use between growing seasons did occur, but did not significantly modify the overall composition of the landscape. Figure 3 shows an aerial view of the landscape around the Low-Ag apiary site, which was dominated by a mixture of pasture and woodlands, with some small home gardens, commercial fish farming, and a few small fruit operations, but very little row crop agriculture. Figure 4 outlines the dominant land use within a two-mile radius of the beehives.

An average of 81% of the landscape was under cultivation in the High-Ag area during the 2014 and 2015 growing seasons (Table 1). The largest proportion (57%) was planted with soybeans, while 10% was used for rice, 8% was used for corn, and 6% was planted with minority crops (cotton, grain sorghum, green beans). The remaining landscape was comprised of 15% uncultivated land (fallow fields, pasture, woodland, wetland), with 4% devoted to commercial fish ponds. This extensive agricultural area supplied bee colonies with ample forage to build up population numbers and produce surplus honey, but also had potential for significant exposure to numerous pesticides applied throughout the season. Grower-reported applications of insecticides and fungicides in 2014 and 2015 are summarized by crop in Table 2.

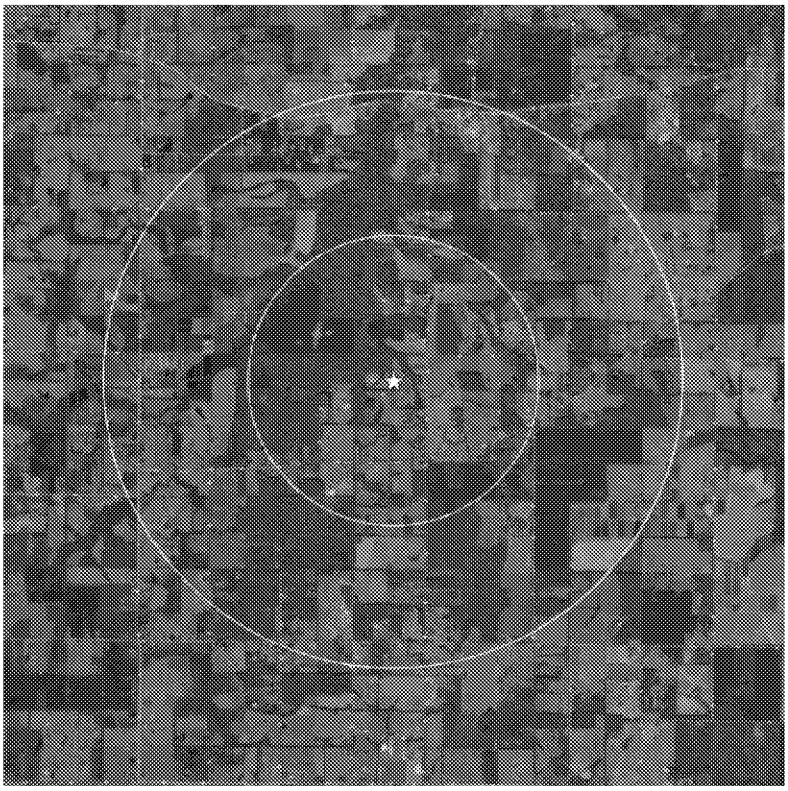

Figure 3. Aerial view of the Low-Ag study site, Lonoke County, Arkansas. The star indicates the apiary location. The yellow circle indicates a one-mile radius from the beehives; the white circle indicates a two-mile radius from the hives. The landscape included a diverse mixture of pasture, woodlands, commercial fish farming, residential gardens, and a few small fruit or orchard operations, but no significant row crop agriculture near the apiary site (data: Google, Maxar Technologies, State of Arkansas, USDA Farm Services Agency).

Table 1. Summary of land use within the High-Ag survey site in 2014–2015. This site included all the agricultural fields within approximately two miles of the apiary location. Areas of crop fields that extended outside of a two-mile radius were included in the survey.

Land Use	Total Acreage		% Acreage		
	2014	2015	2014	2015	2-Year Average
Soybean	7489	5285	61.6	52.5	57.1
Rice	1110	1088	9.1	10.8	10
Corn	1005	849	8.3	8.4	8.4
Cotton	443	317	3.6	3.2	3.4
Grain Sorghum	92	91	0.8	0.9	0.9
Green Beans	0	306	0	3	1.5
Total Crop Acreage	10,139	7936	83.4	78.9	81.2
Fish Ponds	396	396	3.9	3.9	3.9
Uncultivated Land	1625	1731	12.7	17.2	15
Total Acreage	12,160	10,063	100	100	100

Table 2. Reported acreage receiving pesticide application, by crop, within the High-Ag survey area during the 2014 and 2015 growing seasons.

Year	Pesticide	Class *	Number of Acres of Each Crop Treated by Pesticide Listed						Total Acres Treated	Percentage Surveyed Landscape Treated
			Soybean	Corn	Rice	Grain Sorghum	Cotton	Green Bean		
2014	Thiamethoxam	i-neo	3677	789	669	92	264	0	5491	45.2
	Imidacloprid	i-neo	884	81	0	0	203	0	1168	9.6
	Clothianidin	i-neo	1054	81	0	0	11	0	1146	9.4
	Dimethoate	I-op	54	0	0	0	0	0	54	0.4
	Cypermethrin	I-py	33	0	0	0	61	0	94	0.8
	Lambda-Cyhalothrin	i-pyr	685	0	347	0	192	0	1224	10.1
	Bifenthrin	i-pyr	319	81	0	0	11	0	411	3.4
	Chlorantraniliprole	i-ry	319	50	0	0	72	0	441	3.6
	Flonicamid	i-u	175	0	0	0	10	0	185	1.5
	Novaluron	igr	285	81	0	0	11	0	377	3.1
	Fludioxonil	f	3637	868	669	92	192	0	5458	44.9
	Mefenoxam	f	3637	868	669	92	192	0	5458	44.9
	Azoxystrobin	f	1608	0	347	0	323	0	2278	18.7
	Prothioconizole	f	1567	509	62	0	0	0	2138	17.6
	Trifloxystrobin	f	1567	509	62	0	0	0	2138	17.6
	Metalaxyl	f	564	0	0	0	131	0	695	5.7
	Tebuconazole	f	564	0	0	0	131	0	695	5.7
	Tiabendazole	f	519	0	0	0	0	0	519	4.3
	Pyraclostrobin	f	479	0	0	0	0	0	479	3.9
	Propiconazole	f	0	0	292	0	0	0	292	2.4
2015	Thiamethoxam	i - neo	2965	0	344	0	317	225	3851	38.3
	Clothianidin	i - neo	0	849	0	0	317	0	1166	11.6
	Acephate	i - op	0	0	0	0	317	0	317	3.2
	Chlorpyrifos	i - op	0	0	0	91	0	0	91	0.9
	Bifenthrin	i - pyr	0	0	0	0	317	0	317	3.2
	Lambda-Cyhalothrin	i - pyr	199	0	0	0	0	0	199	2
	Chlorantraniliprole	i - ry	768	0	0	0	317	93	1178	11.7
	Flubendiamide	i - ry	256	0	0	0	0	0	256	2.5
	Novaluron	igr	0	0	0	0	317	0	317	3.2
	Fludioxonil	f	2197	0	0	0	0	132	2329	23.1
	Mefenoxam	f	2197	0	0	0	0	132	2329	23.1
	Azoxystrobin	f	877	312	745	0	0	306	2240	22.3
	Propiconazole	f	0	312	344	0	0	0	656	6.5

* f = fungicide, i = insecticide, igr = insect growth regulator; neo = neonicotinoid; op = organophosphate, pyr = pyrethroid, ry = ryanoid, u = unclassified.

Figure 4. Dominant land use within a two-mile radius around the Low-Ag site in 2014. This landscape was primarily composed of woodland and grassland/pasture, with a small area of wheat, and some commercial fish farming.

The Low-Ag site, within two miles (3.2 km) of the apiary, had very little of the landscape devoted to row crop agriculture (Table 3). Less than 6% of the landscape was devoted to wheat—which is not attractive to honey bees—and fish farming. The rest of the land around the site was either woodland (54%) or grass/pasture (43%). Pastures may contain bee-attractive flowers, and are sometimes treated for fall armyworms to protect grazing and hay crops, but no products recommended for armyworm control [41] were detected in any of our samples.

Table 3. Summary of land use within a two-mile radius around the Low-Ag site in 2014.

Land Use	Total Acreage	% Acreage
Woodland	7489	54.0
Grass/Pasture	1110	42.5
Fish Ponds	1005	3.5
Wheat	443	1.2
Total Acreage	8043	100

Figure 5 illustrates the reported distribution of crops planted with neonicotinoid seed treatments. These treatments have come under particular scrutiny for their potential to translocate toxins and make them available to foraging bees in pollen and nectar, however Stewart et al. reported generally low concentrations of these products when sampling seed-treated crops growing in the mid-South [42]. Figure 6 illustrates the distribution of foliar pesticide applications reported around the apiary site.

Figure 5. Reported distribution of neonicotinoid insecticides applied as seed treatments within the High-Ag survey area during the 2014 and 2015 growing seasons.

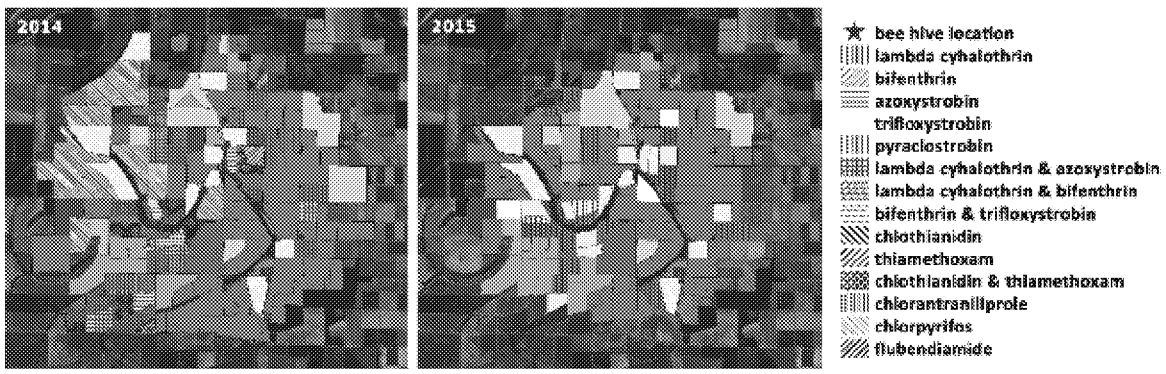

Figure 6. Reported distribution of foliar applied pesticides in the surveyed area within the High-Ag survey area during the 2014 and 2015 growing seasons.

Samples of package bees and beeswax foundation were taken when colonies were established and screened for pesticide residues along with hive products sampled later in the season. Both the package bees and foundation wax contained compounds that we had not applied to the hives, and were not reported as used by area farmers, but were detected (Table 4). Coumaphos and fluvalinate were both detected in package bees, which could be a result of the package bee supplier treating bees for mites prior to shipping spring packages. The presence of the herbicide atrazine in package bees is curious, and may have resulted from bees encountering the compound prior to being packaged for sale.

Table 4. Compounds detected in initial samples of package bees and foundation wax used to establish colonies in 2014. Results reported as ppb, and are a mean of two separate samples randomly taken on the day of installation.

Compound	Class *	Level of Detection (ppb)	Beeswax Foundation	Package Bees
coumaphos	a	5	323.5	59
fluvalinate	a	1	273	136.5
chlorpyriphos	i	1	2.6	0
hexythiazox	igr	30	trace	0
vinclozolin	f	1	trace	0
atrazine	h	6	0	96.9

* a = acaricide, f = fungicide, h = herbicide, i = insecticide; 0 = not detected; trace = detected, but insufficient to quantify.

The highest levels of residues found in wax foundation were coumaphos and fluvalinate, which agrees with Mullin et al. [39] and Medici et al. [33]. These products are commonly applied by beekeepers to control Varroa mites. These lipophilic compounds are known to be readily soluble in beeswax [43,44], and remain stable when wax is melted and formed into new foundation sheets [45]. Chlorpyrifos was also detected, but at a much lower level than that found by Mullin et al. [31].

Samples of adult bees and drawn comb were also initially collected from nucleus colonies established in the High-Ag apiary in 2015; however, these samples were accidently destroyed in shipping, and could not be analyzed for residues.

Given that agricultural pesticides were routinely applied to much of the landscape around the apiary, we expected that bees would be exposed to these while foraging, and had potential to transport contaminated nectar or pollen back to the hive. Samples of beeswax, bee bread, honey, and bees were screened for 174 common agricultural pesticides and their metabolites. Of these, only 26 compounds were detected during the two-year study, including one defoliant, one insect growth regulator, five herbicides, six fungicides, six insecticides never used in beekeeping, and five insecticides/miticides and their metabolites which are used in beekeeping and for various other agricultural purposes, as well as two miticides exclusively used by beekeepers to control *Varroa destructor*. Overall, considering the widespread use of pesticides in the landscape around the apiary at the High-Ag site, bee hive samples contained fairly little contamination. The residues detected in hive samples are summarized in Table 5. A list of the compounds screened, but not detected, is reported in Table 6.

In honey sampled at the High-Ag site, the only contaminants detected were flubendiamide (in 2014) and DMPF (2,4-dimethylphenyl formamide) (in 2015). This agrees with Rissato et al. [46] and Alburaki et al. [47], who also found pesticide concentrations in honey to be very low or undetectable. This is likely because many synthetic pesticides are lipophilic, and readily accumulate in beeswax [44], but are not especially soluble in honey [45]. Also, many foliar-applied insecticides work by contact, and are unlikely to be present in nectar collected by bees. Honey samples from the Low-Ag site contained no detectable residues.

Bee bread collected from hives in the High-Ag apiary contained four compounds in 2014 and three compounds in 2015, but all at low levels. A review by Bogdanov [48] also suggests that pollen (bee bread) is more likely to be contaminated with residues than honey. Bee bread samples from the Low-Ag site contained no detectable residues.

No pesticide residues were detected in adult bee samples in 2014, from either the High-Ag or Low-Ag sites. However, because adult bees are short-lived in the summer, our limited sampling at the end of the season may not have detected applications made earlier. Similarly, in 2015, only beekeeper-applied products were detected in adult bee samples.

New beeswax contained the highest number of detected compounds at both sites, and in both years. New beeswax sampled from the Low-Ag site in 2014 contained the highest number of compounds detected (16). The sources of these contaminants in the Low-Ag landscape are unknown, but were generally well below LD_{50} values for bees. In new beeswax sampled at the High-Ag site, nine compounds were detected in 2014, and seven compounds were detected in 2015.

Table 5. Pesticide residues detected in hive products. Results are given in parts per billion (ppb, ±SE). Where results are reported as 0, compound was not detected. Where results are reported as "trace" the compound was detected, but at a level too low to be quantifiable.

Pesticide	Class *	Level of Detection (ppb)	2014			2015				
			Low-Ag	High-Ag		High-Ag				
			New Wax	Honey	Pollen	New Wax	Honey	Pollen	New Wax	Bees
Coumaphos	a	5	158.85 (95.38)	0	0	103.75 (73.08)	0	0	0	0
Coumaphos Oxon ***	a	5	1.28 (2.55)	0	0	trace	0	0	0	0
Fluvalinate	a	1	128.53 (61.1)	0	0	63 (73.52)	0	0	0	0
Amitraz	a	4	0	0	0	0	0	0	0	0
DMA **	a	50	0	0	0	0	0	0	0	297.5 (595)
DMPF **	a	10	0	0	0	0	13.05 (15.66)	0.38 (0.25)	769.75 (373.05)	trace
Thymol	a	50	trace	0	0	0	0	0	0	747.5 (1495)
Bifenthrin	i	2	37 (30.2)	0	4.98 (9.95)	3.75 (4.37)	0	2.05 (4.1)	14.3 (3.03)	0
Chlorpyrifos	i	1	0.68 (1.35)	0	0	0.55 (1.1)	0	0	0	0
Cyhalothrin	i	1	0.55 (1.1)	0	3.78 (0.79)	0	0	2.48 (2.94)	0	0
Dimethoate	i	50	0.25 (0.5)	0	0	0	0	0	0	0
Flubendiamide	i	25	0	48.7 (68.87)	0	0	0	0	0	0
Methyl Parathion	i	2	0.25 (0.5)	0	0	0	0	0	0	0
Hexythiazox	igr	30	0.25 (0.5)	0	0	0.5 (0.58)	0	0	0	0
Azoxystrobin	f	2	1.13 (2.25)	0	30.25 (36.07)	2.13 (4.25)	0	0	0	0
Carbendazim	f	5	0	0	0	0	0	0	0.25 (0.29)	0
Chlorothalonil	f	30	0	0	0	0.5 (0.58)	0	0	0	0
Metalaxyl	f	2	1.55 (3.1)	0	0	0	0	0	0	0
Trifloxystrobin	f	1	0.5 (0.58)	0	0	0	0	0	0	0
Vinclozolin	f	1	0	0	0	0.25 (0.5)	0	0	0	0
Atrazine	h	6	2.35 (4.7)	0	0	0	0	0	0.25 (0.29)	0
Metolachlor	h	6	0	0	0	0	0	0	241.25 (311.42)	0
Metribuzin	h	1	0	0	0	0	0	0	10.9 (5.01)	0
Pendimethalin	h	6	8.8 (16.94)	0	0	0	0	0	0	0
Tribufos	d	2	0	0	3.9 (7.8)	0	0	0	8.48 (16.95)	0

* a = acaricide, d = defoliant, f = fungicide, h = herbicide, i = insecticide, igr = insect growth regulator; ** DMA = 2,4-dimethylanaline, DMPF = 2,4-dimethylphenyl formamide; both are breakdown metabolites of amitraz; *** coumaphos oxon is a breakdown metabolites of coumaphos.

Table 6. All beehive samples were screened for 174 common agricultural chemicals and metabolites. Of these, 148 compounds that were not detected in any samples are listed, with their levels of detection (LOD) in ppb.

Compound	LOD	Compound	LOD	Compound	LOD
1-Naphthol	10	Dinotefuran	2	Parathion methyl	2
3-Hydroxycarbofuran	10	Diphenamid	20	Permethrin total	10
4,4 dibromobenzophenone	4	Endosulfan I	2	Phenothrin	10
4-Hydroxychlorothalonil	50	Endosulfan II	2	Phorate	50
Acephate	50	Endosulfan sulfate	2	Phosalone	10
Acetamiprid	2	Endrin	10	Phosmet	10
Acetochlor	50	Epoxiconazole	1	Piperonyl butoxide	50
Alachlor	10	Esfenvalerate	2	Pirimiphos methyl	20
Aldicarb	4	Ethion	10	Prallethrin	4
Aldicarb sulfone	2	Ethofumesate	10	Profenofos	10
Aldicarb sulfoxide	20	Etoxazole	1	Pronamide	1
Aldrin	10	Etridiazole	50	Propachlor	10
Allethrin	10	Famoxadone	20	Propanil	10
Amicarbazone	30	Fenamidone	10	Propargite	10
Azinphos methyl	6	Fenbuconazole	10	Propazine	20
Bendiocarb	10	Fenhexamid	6	Propetamphos	4
Benoxacor	20	Fenoxaprop-ethyl	20	Propham	20
BHC alpha	4	Fenpropathrin	10	Propiconazole	20
Bifenazate	20	Fenpyroximate	5	Pymetrozine	20
Boscalid	4	Fenthion	10	Pyraclostrobin	15
Bromuconazole	20	Fipronil	10	Pyrethrins	50
Buprofezin	20	Flonicamid	8	Pyridaben	10
Captan	10	Fludioxonil	20	Pyrimethanil	20
Carbaryl	30	Fluoxastrobin	4	Pyriproxyfen	10
Carbofuran	10	Fluridone	10	Quinoxyfen	10
Carboxin	4	Flutolanil	4	Quintozene (PCNB)	1
Carfentrazone ethyl	1	Heptachlor epoxide	10	Resmethrin total	5
Chlorfenopyr	1	Heptachlor	4	Sethoxydim	2
Chlorfenvinphos	6	Hexachlorobenzene (HCB)	1	Simazine	50
Chlorferone	50	Hydroprene	20	Spinosad	50
Chlorpropham (CIPC)	40	Imazalil	20	Spirodiclofen	2
Clofentezine	100	Imidacloprid 5-hydroxy	25	Spiromesifen	10
Clothianidin	1	Imidacloprid	1	Tebuconazole	8
Cyfluthrin	4	Imidacloprid olefin	10	Tebufenozide	10
Cypermethrin	4	Indoxacarb	3	Tebuthiuron	2
Cyphenothrin	20	Iprodione	50	Tefluthrin	1
Cyprodinil	1	Lindane	4	Tetrachlorvinphos	4
DDD p,p′	4	Linuron	20	Tetraconazole	6
DDE p,p′	2	Malathion	4	Tetradifon	1
DDT p,p′	4	Methamidophos	4	Tetramethrin	10
Deltamethrin	50	Methidathion	10	Thiabendazole	1
Diazinon	5	Methomyl	10	Thiacloprid	1
Dichlorvos (DDVP)	50	Methoxyfenozide	10	Thiamethoxam	1
Dicloran	1	MGK-264	50	THPI	50
Dicofol	1	MGK-326	10	Triadimefon	2
Dieldrin	10	Myclobutanil	15	Triadimenol	45
Difenoconazole	10	Norflurazon	6	Triflumizole	50
Diflubenzuron	10	Oxamyl	5	Triticonazole	10
Dimethenamid	10	Oxyfluorfen	1		
Dimethomorph	20	Paradichlorobenzene	10		

In 2015, a high level of the herbicide metolachlor was detected in samples of new beeswax, but not in bee bread or honey. This contamination could have been the result of foraging honey bees in contact with freshly applied material, and spreading it to wax while walking across the comb. Several fungicides were detected, again mostly in beeswax. These are commonly used to control blight and plant diseases in agriculture, and are not presumed to be acutely toxic to honey bees. However, when

synergized with other compounds, the combined toxicity may increase [39,49,50]. Also, exposure to fungicides appears to make honey bees more susceptible to the gut pathogen *Nosema cerana* [51]. Also, acute toxicity is not the only concern of pollinator health. Numerous sublethal effects from exposure to single and multiple pesticides have been noted in recent literature [28,33,52–55].

The highest levels of residues detected in wax were from products that are primarily applied by beekeepers for Varroa mite control. In 2014, coumaphos and fluvalinate were detected in new beeswax at both sites. Both of these compounds had been detected in foundation wax and package bees at the beginning of the season, but were not applied early to hives during the experiment, and were not likely to be used for any nearby field application. Both of these are known to migrate from contaminated wax [52]. Their presence in newly secreted beeswax suggests that these lipophilic chemicals may have diffused from contaminated foundation or been spread by contact with the bodies of bees. In 2015, wax samples contained residues of products that were applied to colonies. Amitraz had been applied for Varroa control in nucleus colonies prior to purchase, according to the nucleus colony provider. No amitraz was detected in the subsequent sampling of any hive products, but DMA (2,4-dimethyl aniline) and DMPF, which are both breakdown products of amitraz [56], were detected more than six months later in samples of adult bees, capped honey, bee bread, and new beeswax. Also, high levels of thymol were present in adult bees that were sampled after Varroa control application of thymol was made in the late summer. However, thymol was not detected in other hive products. Thymol is a naturally derived essential oil that is obtained from the thyme plant (*Thymus vulgaris*), and not considered toxic to bees [57], but can affect the flavor of honey if applied before honey is harvested [58].

Absent from the list of detected compounds are any of the neonicotinoid group of insecticides, which have recently received much critical attention for their suspected role in honey bee population declines. Krupke et al. [59] suggested that dust exhausted during planting treated seeds could potentially contaminate nearby wildflowers where bees forage, which was confirmed by Stewart et al. [42]. Dively and Kamel [60] found that neonicotinoid treatments applied as foliar applications or through chemigation resulted in the highest residues in nectar and pollen in cucurbits, while the lowest residues were detected from seed dressings. Furthermore, Meikel et al. [61] found that imidacloprid remained stable in hive products for at least seven months. A worldwide survey of honey as a human food product found very low levels of neonicotinoid contamination, with a mean for positive detections of 1.8 ± 0.56 (SE) ppb [62]. In the current survey, neonicotinoid products were applied as pre-plant seed coatings (i.e., seed treatments) as well as via foliar applications on multiple crops throughout the foraging landscape around the High-Ag apiary site. Despite their widespread use in this landscape, we did not detect any neonicotinoids in our samples. However, our sampling was limited to the end of the growing season, when residues from early season treatments or other sporadic applications may not have been detectable.

4. Conclusions

Honey bees forage over an extensive area for the nectar and pollen they utilize as food. In agricultural landscapes, there is great potential for pesticide exposure of honey bees in the field, and for contamination of the hive and hive products. The Arkansas survey of area growers, although most certainly incomplete in documenting all pesticide applications, confirms that multiple products, in multiple chemical classes, are applied to the agricultural landscape routinely throughout the season as part of conventional agricultural production.

Despite the widespread use of these chemicals, both hobbyist and commercial beekeepers continue to maintain productive honey bee colonies in intensive agricultural areas [22]. Furthermore, colony productivity has been shown to increase with proximity to crop land [27], and research has also shown that mass flowering crops can benefit wild and managed bees, despite other risks posed by agricultural practices and land management [63–65].

The results of our limited investigation are consistent with other studies. Similar to Mullin et al. [31], who conducted one of the broadest and most geographically diverse studies, we found that the highest

concentrations of detectable compounds were a result of beekeeper-applied products. These products, by design, have low toxicity relative to the dose required for adverse effects. To a lesser degree, fungicides and herbicides also have low general toxicity to honey bees, but are known to have synergistic effects with other pesticides, which increase the toxicity of one or more of the compounds [50,66,67]. The increasing buildup of pesticide contamination in combs over time can adversely affect honey bee health and survivorship [68–70]. Chronic exposure to sublethal levels of pesticides can impact honey bee health and immune response [51,71]. Pesticides are rarely, if ever, encountered individually, but more often simultaneously with others [39]. Efforts have been made to explore the toxicity of combinations of pesticides that are often found together [49,50,70,71].

Recent declines in honey bee populations cannot be attributed to any one single cause, but are likely the result of accumulated stresses from multiple causes [53]. The complex of the mite *Varroa destructor* (Anderson and Trueman) and the viruses they vector continues to be the greatest threat to honey bee health [72,73]. Other pathogens such as *Nosema ceranae* also affect honey bee health, productivity, and survivorship [74]. Additionally, bees must have access to adequate nutrition from floral resources in order to maintain health [75]. Most likely, a combination of multiple factors, including these and others, are responsible for recent declines in honey bee health and populations [53,76]. Optimal management of honey bee colonies must include a reduction of multiple stress factors, including sublethal exposure to pesticides, and discussions of honey bee health should not be limited to a narrow focus on pesticide exposure.

To expand upon this work, a similar survey could be conducted that includes records on the timing, formulations, and rates of pesticide applications for specific crop fields, and more frequent sampling through the season to more precisely determine when contaminants may be entering beehives, and how long particular applications may pose specific risks to bee colonies.

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Conflicts of Interest: The authors declare no competing financial interests.

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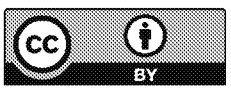

Message

From: Bethea, Jean [Bethea.Jean@epa.gov]
Sent: 9/30/2019 1:52:02 PM
To: OPP EFED [OPP_EFED@epa.gov]
Subject: Weekly WAAG attached
Attachments: EFED WAAG 2019.xlsx

Please see the attached.

Jean Bethea, Administrative Assistant
Environmental Fate and Effects Division
Office of Pesticide Programs, U.S. EPA
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WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant

Monday	Tuesday
	Neonic Slides Walk Thru
	ESA Revised Methods Briefing
	Stone Consulting & REJV Presentation
Deputies and Associates Meeting	PRD/EFED General
Congress Report Planing Mtg	PWC Scenarios Project Weekly
FIFRA Sap	
	Tetraniliprole Pollinator Risk Assessment EFED DD Briefing
	First team meeting for forchlorfenuron, adding aerial application method for almond
	Stone Consulting & REJV Presentations Related to CLA comments submitted in response to ESA revised method
	ESA: Comments on Revised Method and Discussion with Stone Consulting (for CLA) and REJV Presentation
	Neonic AA slide Run-through for DD

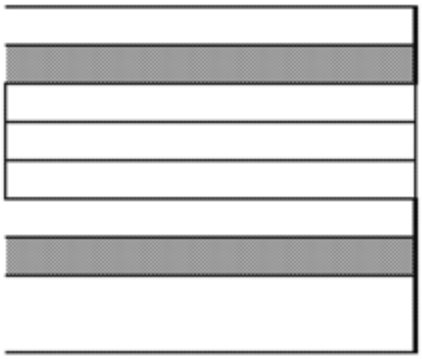
Wednesday	Thursday
EFED Director in S-7913 today	Senior Sciencce Advisor Forum
Tetranilprole Pollinator Risk Assess.	Spray Drift Update
	SAP Slides Run Through
HED/EFED General	Resources Meeting with ITRMD
OPP General w/EFED	
	DD briefing on spray drift updates
	Fumigant POC check-in
-Pinoxaden Post DRA Check-In -Methomyl/Carbaryl Team Meeting	-Team meeting to discuss cyproconazole risk table -Nicarbazin Update Team Meeting
EFED New Employee Training - One-day Training Follow-up Q&A	
Neonics: AA Briefing Slides Walkthrough	
- ESA Team Meeting - OPPEL Workgroup	DDs: Draft Monitoring Data SAP Slides
	Fluindapyr: Label Assumptions Fluindapyr: ROCKS Meeting

10/4/19
Friday
Fish Biotransformation in Bioaccumulation Workshop at HESI

EISB	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

ESA Leads Mtg	
SAM EFED/CED Check-In	
	GIS Workgroup Monthly Meeting

ESA Team Mtg	
SAM Weekly Check-In 2019	



WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
EISB	IT
	ESA

Monday	Tuesday
Chlorpyrifos Bi-weekly	Pesticide Usage Mtg w/Services
	EDSP Science and Policy Committee
Opp Weekly Staff Meeting	PRD/EFED General
SFIREG CONFERENCE	PWC Scenarios Project Week DD Update
	Dithiopyr prep meeting w/ PRD
Chlorpyrifos OD Biweekly Update	
Picloram	
	ESA Leads mtg.

		9/27/19
Wednesday	**Thursday**	**Friday**
EFED introduction Training	**Resources Meeting**	
RD/EFED General	EFED BEAD General	
	Drinking Water Assessment Update	
Neonic EFED off-week meeting		
Dithiopyr CTA meeting w/ Corteva		
EFED One-Day Training		
Methomyl/Carbaryl Team Meeting		
EFED One-Day Training		
	Atrazine: Meeting with Corn Growers	
Chlorpyrifos Biweekly Team Meeting		
	Halauxifen: Compost Study Discussion with Registrant	
	ESA Team Meeting	
	DRA Kickoff Meeting for Prothioconazole	
Neonic EFED off-week meeting	Mancozeb RR first team meeting w/PRD	
	Flumioxazin RR Mitigation w/ Valent	
	Aminocyclopyrachlor (ACP) State Engagement meeting	
	ESA Team meeting	

All	Modeling
	Other
	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	sam efed-ced check-in

	SAM Weekly Check-ins for 2019	
	`	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
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	Registrant
	Other
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	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other

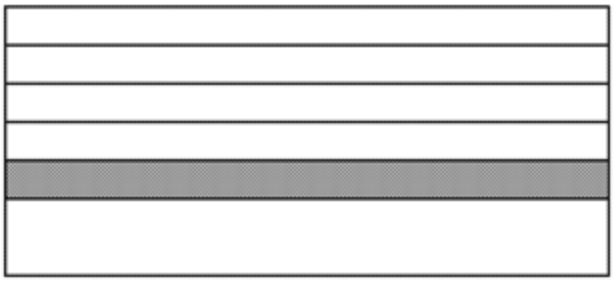
Monday
Webinar for Fed Partners re ESA
Drinking Water Assessment
OPP Weekly Staff Mtg
California Strawberry Commission Mtg
ELMS Champion OCI Meeting #2
- Atrazine: Discussion with Syngenta and Monitoring Programs - Chlorpyrifos: Conference with Corteva - California Strawberry Commission

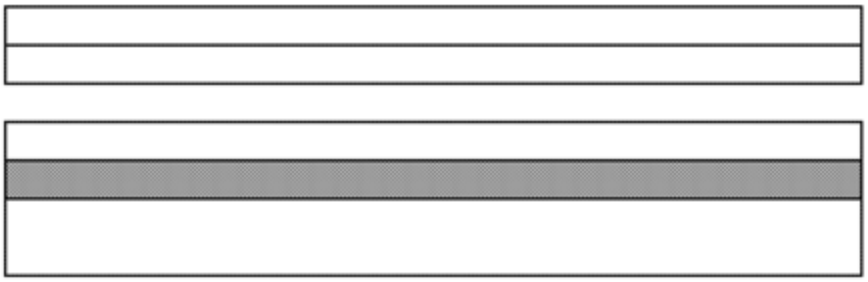
ELMS Champion OCI Meeting #2

Tuesday
USDA Briefing/Drinking Water
PRD/EFED General RD/EFED General
RD/EFED General
Ethofumesate DRA kick-off meeting
Conference Call with Corteva to discuss crosswalk document and data matrices for Fluazaindolizine
- USDA Briefing on Drinking Water Projects

		9/20/19
Wednesday	**Thursday**	**Friday**
EFED Director in S-7913	Senior Science Advisor Forum	
Malathion check-in		
OCSPP 2019 Managers Mandatory		
Discussion of MCFA Workshop Proposal		
Neonic EFED biweekly meeting	Fumigant POC check-in meeting	
Methomyl/Carbaryl Team Meeting		
EFED New Employee Training - Eco Residues of Concern		
Neonics: EFED Biweekly Team Meeting		
Kasugamycin: New Use RD Team Meeting		
OPPEL Team Coordination		
EFED Neonic Biweekly	Flumioxazin Prep for Registrant Meeting w/PRD	

EISB	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)





	ESA Team Meeting	

WEEK AT-A-GLANCE (WAAG)	
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IO	Stakeholder/Briefing
	Risk Assessment
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	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other

Monday	Tuesday
Drinking Water Scenario Coord. DD Briefing	**EFED All Hands**
Chlorpyrifos B-Weekly	Briefing on propargite DWA
OPP Weekly Staff Mtg	
Drinking Water Assessment Update	Briefing on Honey Bee Colony
	-DD briefing on honey bee colony simulation model -DD briefing on propargite DWA
Methomyl Meeting - DW Scenario Background/Path Forward	
- Chlorpyrifos: OD Biweekly Meeting - Methomyl: Drinking Water Discussion with PRD	Clofentezine: New Uses Discussion with RD
	OPPEL Coordination Group

		9/13/19
Wednesday	**Thursday**	**Friday**
	EFED Pollinator Presentation Series #3: Neonics Bee Case Study	
Chlorpyrifos B-Weekly		
RD/EFED General	EFED/AD General EFED/BEAD General	
DC Cir. Pests Weekly Call		
Neonic EFED off-week meeting	Neonic OD briefing debrief w/ PRD	
Methomyl/Carbaryl Team Meeting	Mandestrobin Seed Treatment Uses First Team Meeting	
- Chlorpyrifos: Biweekly Team Meeting - Neonics: Biweekly EFED Meeting	- ESA Team Meetintg - Neonics: post-OD Briefing Discussion with PRD	
OPPEL Coordination Group		
Neonic EFED off-week meeting	Neonic OD briefing debrief w/ PRD	

EISB	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	ESA Team Mtg	
sam efed-ced check-in	SAM Weekly Check-In 2019	
	Stat/CETISA Bi-Weekly Mtg	

WEEK AT-A-GLANCE (WAAG)		
BRANCH		Monday
IO	Stakeholder/Briefing	LABOR DAY
	Risk Assessment	
	Registrant/Applicant/Tour	
	SAP/CRP/EDSP	
	Other OPP & Div. Meetings	
	Other	
ERB1	Stakeholder/Briefing	
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	Registrant	
	Other	
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	Registrant	
	Other	
ERB5	Stakeholder/Briefing	
	Risk Assessment (RA)/ Problem Formulation (PF)	
	Registrant	

Tuesday	Wednesday
NAFTA Stakeholder	**NAFTA Stakeholder**
	DC Cir. Prsts Weekly Call
PRD/EFED General	EFED General w/OPP Dir HED/EFED General ITMRD/EFED General
	-AA briefing on 2,4-D PID -PRD briefing on acequinocyl DRA
	Neonic EFED biweekly meeting

Methomyl/Carbaryl Team Meeting	Aldicarb - Citrus new use
- Atrazine: Monitoring Program Discussion with PRD - Neonics: EFED Biweekly Team Meeting	
OPPEL Coordination Group	- ESA Team Meeting - Behaviors Retreat: Follow-up
	EFED Neonic Biweekly

	9/6/19
Thursday	Friday
Briefing on Honey Bee Colony Simulation Model	
ESA/Pesticide Sr. Mgrs Call @ Weekly Sr. Science Advisor Managers Forum	
Resources Meeting	
Tribal Consultation #2 - ESA Revised Method - Technical Presentation & Comments	
DD briefing on honey bee colony simulation model	
-2,4-D AZ Pronghorn discussion w/ OGC & RD -Fumigant POC check-in	
Briefing on Honey Bee Colony Simulation Model	

	Other	
ERB6	Stakeholder/Briefing	
	Risk Assessment (RA)/ Problem Formulation (PF)	
	Registrant	
	Other	
EISB	IT	
	ESA	
	Modeling	
	Other	
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)	

Sam EFED CED Check-In	
GIS Workgroup Subgroup	GIS Workgroup Monthly Mtg

Methomyl Groundwater Discussion with ERB2	
ESA Team Mtg	
SAM Weekly Check-in for 2019	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing

Monday	Tuesday
EPA/PMRA Joint Review	Updated Pesticide Usage Mtg w/Services
Bee Retrospective Follow-UP Drinking Water Accessment Chlorpyrifos Bi-Weekly	Placeholder discussion/ ESA comments
OPP Weekly Staff MTG	
	Kynetec Overview of Survey Methodology
	Pollinator Retrospective team briefing for PRD
Methomyl DWA Check-in	
	Kynetec Training with BEAD
- Atrazine: Discuss Proposal to Discontinue Monitoring Program - Chlorpyrifos: OD Biweekly Meeting	
	- Flupyradifurone: Reduced Risk Voting - Kynetec Training with BEAD
Formetenate HCL -briefing slide discussion w/ PRD	

		8/30/19
Wednesday	**Thursday**	**Friday**
OD Neonic Briefing by EFED and PRD	FY 2020 New AI Planning	
DC Cir. Pests. Weekly Call	Dicamba Mtg w/DOJ ESA Team Mtg	
RD/EFED General	EFED/BEAD General	
Hold for malathion discussion		
OD briefing on neonics	-Acequinocyl DRA briefing for PRD -Metolachlor DRA briefing for PRD	
	Acequinocyl S3NU 90-day Screen Meeting	
Methomyl/Carbaryl Team Meeting		
OD Neonics Briefing		
- Chlorpyrifos: PRD Biweekly Team Meeting - Neonics: EFED Team Meeting		
OPPEL Coordination Team		
	PCNB Check In	
OD Neonics Briefing		
EFED Neonic Bi-weekly		

EISB	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Pollinator Data Retrospective Briefing
	ArcGIS server
	sam efed-ced check-in

	Picarbutrazox update	
	ESA Team meeting	
	SAM Weekly Check-ins for 2019	
	Stat/CETIS biweekly meeting	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
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	Registrant
	Other
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	Risk Assessment (RA)/ Problem Formulation (PF)
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	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant

Monday
Drinking Water Assessment Update
Updated invitation: Chat about ESA-FIFRA
OPP Weejkly Staff Meeting Monthly Chemical Revbiew Mtg
Succession Meeting

Tuesday
Pollinator Data prioritization/retrospective analysis briefing for Director
Pesticide Usage Meeting w/Services — Drinking Water Assessment
PRD/EFED General

Retreat Follow-up

Fenpyroximate EFED DRA Walk-through
Permethrin Schedule Discussion w/RD

GeoPlatform Administrators Monthly Mtg

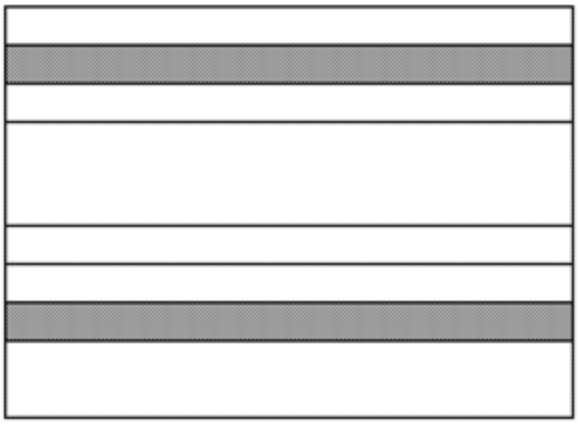
Wednesday
EFED Director in S-7913
DC Cir. Pests. Weekly Call
EFED/ITRMD General
SFIREG/EPA Draft Agenda Walk-Through–September 2019 SFIREG JWC Meeting
Pollinator DD briefing
Neonic biweekly EFED meeting

Methomyl/Carbaryl Team Meeting
Neonics: EFED Team Meeting
Reduced Risk Voting: Flupyradifurone

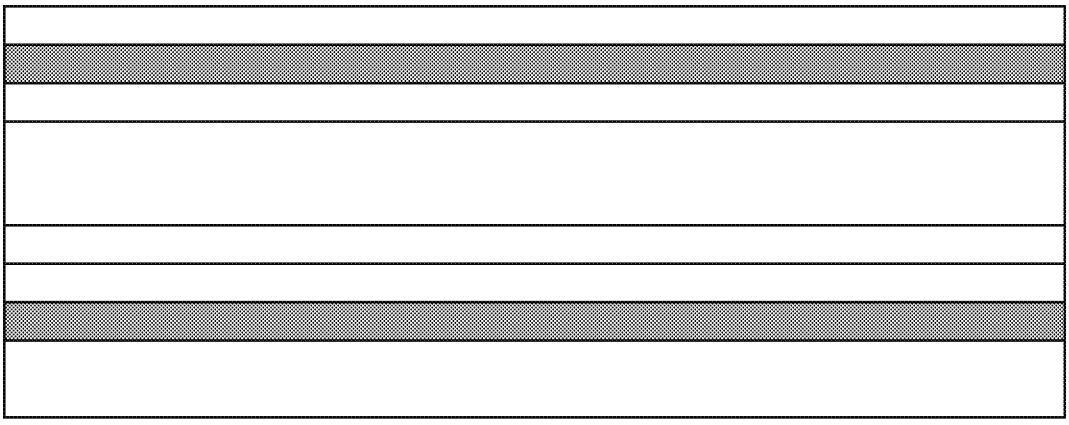
Inorganic Sulfites Path Forward w/PRD EFED Neonic Biweekly

	8/23/19
Thursday	Friday
Executive Briefing on OPP Workflow Salesforce Pilot	
New Chemical Briefing Senior Science Advisors Mtg	
Resources Meeting	
EFED Feds Feed Famiilies Event	
Propanil DRA briefing for PRD	
Indoor fumigant POC check-in	
Feds Feed Families EFED Event	
Topramezone: DRA Kickoff Meeting with PRD	
ESA Team Meeting	

EISB	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)



EPA Geospatial Advisory Committee Meeting ESA Leads Meeting Usage meeting



ESA Team Meeting	
SAM checkin and update with ORD	
PIT CETIS presentation working session	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing

Monday	Tuesday
EPA/USGS Call to Discuss ESA Method - Downstream Risks Chlorpyrifos Bi-weekly	Pesticide Usage Mtg w/Services FIFRA SAP on water monitoring data
OPP Weekly Staff Mtg	
Drinking Water Assessment Updates	Placeholder for call with Pacific NW States on ESA
ICCVAM EcoWG teleconference	
	AA Briefing on Water Monitoring Data SAP
Chlorpyrifos: Biweekly OD update	
	Etridiazole Briefing
	Cyazofamid Mitigation w/PRD

		8/16/19
Wednesday	**Thursday**	**Friday**
DC Cir. Pest Weekly Call Methomyl/Carbaryl Team Meeting	ESA/Pesticide Sr. Mgrs Call	
RD/EFED General	EFED/BEAD General	
	Corteva Pipeline Mtg w/OPP	
-Pollinator DD briefing prep w/ PRD -Neonic EFED off-week meeting	Neonic briefing prep w/ PRD	
Methomyl/Carbaryl Team Meeting		
- Chlorpyrifos: Biweekly Team Meeting - Neonics: EFED Biweekly Meeting	Neonics: PRD Pre-Briefing Prep Team Meeting	
	ESA Team Leaders Meeting	
EFED Neonic Biweekly	Saflufenacil IR-4 New Uses with RD Neonic Briefing Preperation w/ PRD	

EISB	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Propiconazole DRA Kick-Off
ESA Tribal Consultation	ESA Leads Meeting Usage meeting
	SAM checkin and update with ORD

	ESA Team Meeting	

WEEK AT-A-GLANCE (WAAG)	
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	Risk Assessment
	Registrant/Applicant/Tour
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	Other OPP & Div. Meetings
	Other
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	Other
ERB2	Stakeholder/Briefing
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	Registrant
	Other
ERB3	Stakeholder/Briefing
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	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing

Monday	Tuesday
ACP - Briefing Prep for Dunn Briefing	Session 2: Tribal Outreach ESA BEs
Drinking Water Assessment Update	Next Steps on Dicamba Premixes
OPP Weekly Staff Mtg Bi-Weekly Deputies and Associates	Invora Registration at Hdqrs
	Updated Pesticide Usaage Mtg
	-Acequinocyl reduced risk meeting -Pyraclostrobin PID meeting
Mandipropamid Docket Opening Follow Up	
	Reduced Risk - Acequinocyl Voting Meeting
	- Neonics: Briefing Slides Discussion with PRD - Neonics: EFED Biweekly Meeting
Reduced Risk - Acequinocyl Voting Meeting	

		8/9/19
Wednesday	**Thursday**	**Friday**
DC Cir. Pests Weekly Call	Senior Science Advisor Forum	
Updater on EDSP		
OPP General w/EFED HED/EFED General	EFED/AD General Resources Mtg w/ITRMD	
Proposed Follow-Up mtg with CLA regarding Retrospective GTA study	Scientific Integrity Management Dialogue (OITA)	
	Triallate DRA briefing for PRD	
-Neonic slide discussion w/ PRD -Neonic EFED biweekly meeting	Fumigant POC check-in	
Methomyl/Carbaryl Team Meeting		
EFED New Employee Training - CETIS		
Metofluthrin: New Uses Meeting with RD		
	Agenda for OCSPP First Line Supervisors Forum Quarterly call with OCSPP IO participation	
Neonic slide discussion w/ PRD Neonic EFED biweekly meeting	Oxadiazon team meeting w/PRD	

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	Registrant
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	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	ESA Leads Meeting Usage meeting
	SAM checkin and update with ORD
Geo Paltform Webinar	

EFED Neonic Bi-weekly		
OCSPP IT Portfolio Review	Checkin with pollinator retrospective analysis contractor	
	ESA Team Meeting	
GIS Workgroup		

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
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	Risk Assessment
	Registrant/Applicant/Tour
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	Other
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	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing

Monday	Tuesday
Briefing RE: Water Assessments Paper Atrazine CELOC Briefing	
Drinking Water Assessment Update Chlorpyrifos Bi-Weekly	Pesticide Usage Meeting w/Services

OPP Staff Meeting/Succession Planning Retreat
EFED's proposal regarding digitization of DERs

	Prallethrin mitigation meeting
Chlorpyrifos: OD Biweekly Update	

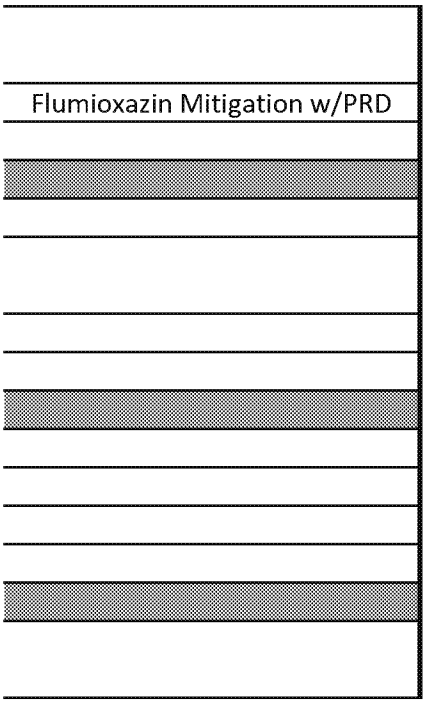
Wednesday	Thursday
EFED Director in S-7913 Wednesdays	
IWG-ExB Meeting: Trilateral Stakeholder Workshop & Conference on Pesticides Prep Conference Call Chlorpyrifos Weekly Team Mtg	ESA Team Meeting
RD/EFED General	EFED/BEAD General
DC Cir. Pests. Weekly Call Methomyl/Carbaryl Team Meeting	Monthly Chemical Review Mtg
-Triallate usage data meeting -Neonics EFED off-week meeting	
-Methomyl Meeting on Aerobic Soil Metabolism Studies -Methomyl/Carbaryl Team Meeting	
EFED New Employee Training - Open Discussion with Risk Managers	
- Buprofezin PRD Meeting on Comments - Chlorpyrifos: PRD Biweekly Team Meeting - Methomyl: Studies Discussion - Neonics Biweekly EFED Meeting	
	Ag Advisor Office meet & greet w/EPA veterinarians

8/2/19
Friday

ERB6	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
EISB	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Acetochlor Data Discussion w/PRD
	PCA/PCT Kickoff
	ESA Leads Meeting

EFED Neonic Bi-Weekly	
Anticoagulant rodenticide kick-off	
OCSPP IT Portfolio Review	
	ESA Team Meeting


Flumioxazin Mitigation w/PRD

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
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	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)

Monday	Tuesday
Drinking Water Assessment Projects Atrazine Prebrief Assessment Projects	Pesticide Usage Mtg w/Services Atrazine Meetin at Hdqr
OPP Weekly Staff Metting OPP Weekly Staff Metting Bi-Weekly Associates and Deputies Mtg	PRD/EFED General GTA Communications Strategy
DDVP/Naled/Trichlorfon check in with PRD and HED	
- Atrazine: OD and DD Pre-briefing on Eco RA - US Composting Council Discussion about Herbicides	- Atrazine: AA Briefing on Eco RA - CLA Meeting Regarding GTA Analyses
	Drinking Water Projects

Wednesday	Thursday
CLA Mtg re GTA Analyses	Senior Science Advisor Manager Forum
	ESA Team Mtg
EFED General w/OPP	Resources Meeting Monthly Chmical Review
DC Cir. Pests. Weekly Call	Executive Briefing on OPP Workforce Salesforce Pilot
Neonic biweekly EFED meeting	-Mefenoxam 90-d screen meeting -Fumigant POC meeting
Methomyl/Carbaryl Team Meeting	Tetramethrin PID meeting
EFED New Employee Training - Spray Drift	
	Atrazine: Administrator Briefing on Eco RA
Cyclaniliprole & Flonicamid Reduced Risk Meeting	
Neonic biweekly EFED meeting	Fumigant POC meeting Imidacloprid Mitigation w/PRD
	HED Residue Data and DWA

7/26/19
Friday
Flumioxazin Mitigation w/PRD

EISB	Registrant
	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	ESA Leads Meeting

	ESA Team Meeting

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
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	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other

Monday	Tuesday
	Monitoring SAP - Briefing for EFED-IO
Greater than Additive Effects and EPA Risk Assessments Chlorpyrifos Bi-Weekly Mtg	Pesticide Usage Mtg w/Services
OPP Weekly Staff Meeting	
	ESA Leads Meeeting
-DDVP/Naled/Trichlorfon check in with PRD and HED -Discuss Methomyl and Thiodicarb DRA Comments	Fluazifop-p-butyl Risk/Mitigation Team Meeting
- Methomyl and Thiodicarb: DRA Comments Discussion with PRD - Pymetrozine: PID Team Meeting with PRD	Pesticide Usage Meeting w/Services Monitoring SAP Briefing for EFED-IO
Greater than Additive Effects & EPA Assessments	Monitoring SAP: Briefing for IO
Saflufenacil RR round 2 w/PRD	

		7/19/19
Wednesday	**Thursday**	**Friday**
EFED Director in S-7913 Wednesdays	Briefing RE: Water Assessments Paper	
\	Senior Science Advisor-Managers Forum Bi-Weekly Meeting	
RD/EFED General	Resources Meeting EFED/AD General	
DC Cir. Pests. Weekly Call	Monthly Chemical Review Meeting	
-Neonic mitigation discussion w/ PRD -Neonic off-week EFED meeting		
Methomyl/Carbaryl Team Meeting		
EFED New Employee Training - Risk Manager Perspective		
- Chlorpyrifos: PRD Team Meeting - Neonicotinoids: Cotton Mitigation Discussion with PRD	Inpyrfluxam: ROCKS Meeting	
- OPP New Employees Orientation- OPPEL Coordination		
	APMS Meeting	
-Neonic mitigation discussion w/ PRD -Neonic off-week EFED meeting	Oxathiapiprolin first team meeting with RD	

ERB6	Stakeholder/Briefing
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	Registrant
	Other
EISB	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Sodium chlorite Pre-Registration Mtg
GeoPlatform Administrators Monthly Meeting	EPA Geospatial Advisory Committee Meeting DDES Webinar

Propiconazole DRA Kick-off EFED neonic Biweekly Rodenticide DRA		
	Stats/CETIS group	
	ESA team Meeting	
	GIS Workgroup	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
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ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)

Monday	Tuesday
	Pesticide Usage Mtg w/Services
OPP Weekly Staff Meeting Bi-Weekly Deputies & Asswociates	PRD/EFED General

\

Amanda--tribal outreach on revised BE method

	Tetraniliprole Check in with RD
	Meeting with Corteva to discuss bridging proposal for fluazaindolizine
	Reduced Risk voting meeting for Fenpyroximate New Uses
	- Inpyrfluxam: RD Briefing on Ecological Assessment - MSMA (Arsenicals): PRD Team Meeting
	Diflufenican: Applicant Presubmission Meeting
	Neonics Ornamentals Mitigation Mtg w/ PRD
	Neonics Ornamentals Mitigation Mtg w/ PRD

		7/12/19
Wednesday	**Thursday**	**Friday**
	Senior Science Advisor Forum	
EFED/ITRMD General EFED General w/OPP	EFED/AD General	
DC Cir. Pests. Weekly Call		
HB Colony Simulation Model Project		
-Sethoxydim DRA Discusion with PRD -Methomyl/Carbaryl Team Meeting		
EFED New Employee Training - Terrestrial Models		
Neonics: EFED Biweekly Team Meeting	Clofentezine: RD New Use Team Meeting (Hops)	
OPPEL Coordination Meeting		
EFED Neonic Teams Biweekly	Pyrethroids Mitigation - Pollinators w/ PRD	
EFED Neonic Teams Biweekly		

EISB	Registrant
	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Malathion Dissipation Conf Call w/ FMC & PRD
	PERFUM3 Training
GeoPlatform meeting Monthly Webinar	

	ESA team meeting	

WEEK AT-A-GLANCE (WAAG)	
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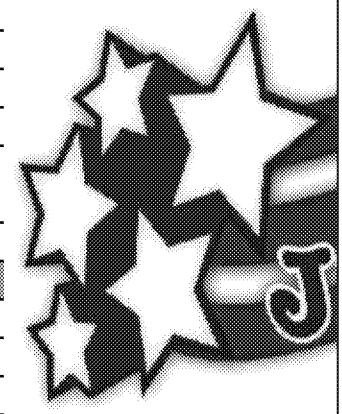
	Other
EISB	IT

Monday	Tuesday
	ESA Leads
OPP Weekly Staff Meeting	

Acute Tox Predictions Webinar	
Chlorpyrifos OD Biweekly Update	
TPTH update with PRD/HED	
GeoPlatform meeting Monthly Webinar	

		7/5/19
Wednesday	Thursday	Friday
SRAC Bi-Weekly Mtg		
HED/EFED General RD/EFED General		
DC Cir. Pests, Weekly Call		
EFED New Employee Training - Pesticides in the News		
- Chlorpyrifos PRD Biweekly Meeting - Neonics EFED Biweekly Meeting		
Anticoagualant rodenticide kick-off Methomyl/Carbaryl Team Mtg		
EFED Neonic Biweekly Anti-coagulant Rodenticides RA		
Fumigant Interest Group		
	Stats/CETIS group	

All	ESA
	Modeling
	Other
	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

	Adaptation Planning GIS Workgroup Subgroup bi-monthly conference call

	ESA team meeting	

WEEK AT-A-GLANCE (WAAG)		
BRANCH		Monday
IO	Stakeholder/Briefing	
	Risk Assessment	
	Registrant/Applicant/Tour	
	SAP/CRP/EDSP	
	Other OPP & Div. Meetings	
	Other	
ERB1	Stakeholder/Briefing	
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EISB	IT	
	ESA	
	Modeling	
	Other	
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)	

			6/28/19
Tuesday	Wednesday	Thursday	Friday

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other

Monday	Tuesday
	OPP EFED All Hands Briefing on: TPTH drinking water addendum and Fenbutatin oxide draft risk assessment
OPP 101 Briefing for OMB	Proposed Sulfocaflor Briefing
OPP Weekly Staff Mtg	
conference call for pesticides and water topics	Pesticide Usage Meeting w/Services
	Tetraniliprole New AI - DD Briefing
	Isoxaflutole conversion w/Bayer
Atrazine: PRD Discussion on Proposed Mitigation	- Chlorpyrifos Biweekly Team Meeting - EFED Neonics Biweekly Meeting
	OPPIN Data Entry Beta-testing
	Sulfoxaflor New Use Briefing - AA

		6/21/19
Wednesday	**Thursday**	**Friday**
	Tetraniliprole DD Briefing Dry Run	
OPP Division Directors & NPIC Team General Briefing	Monthly Chemical Review w/OPP	
PRD/EFED General RD/EFED General	EFED/BEAD General	
DC Cir. Pests. Weekly call	Discussion of Avian Subacute Waiver Guidance and Other Projects	
Neonic off-week EFED meeting	-Broflanilide ROCKS meeting -Neonic biweekly meeting w/ PRD	
Anticoagulant rodenticide Kick Off	Fenbuconazole DRA Kickoff	
Atrazine: Proposed Mitigation Discussion with Syngenta and Adama		
OPPEL Label Coordination Workgroup	ESA Team Meeting	
Boscalid: Check-in with PRD/BEAD Anticoagulant/Rodenticide Kick-off		
	EarthTec Labs: S18 Zebra Mussel Erradication in MD	
Neonic off-week EFED meeting	Neonic biweekly meeting w/ PRD Deltamethrin new product submission w/ RD	

ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
EISB	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)

EFED Neonic Off-week Biweekly EFED Anti-coagulant Rodenticide Mtg	Neonic Biweekly w/ PRD	

WEEK AT-A-GLANCE (WAAG)	
BRANCH	
IO	Stakeholder/Briefing
	Risk Assessment
	Registrant/Applicant/Tour
	SAP/CRP/EDSP
	Other OPP & Div. Meetings
	Other
ERB1	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB2	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB3	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB4	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB5	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant
	Other
ERB6	Stakeholder/Briefing
	Risk Assessment (RA)/ Problem Formulation (PF)
	Registrant

Monday	Tuesday
ESA Revised Methods Public Meeting	
Dicamba ESA Requirements	Discussion of CLA Retrospective Power Pesticide UsageMeeting w/Services
Bi-weekly ADD/DDD Meeting	
	Discussion of CLA Retrospective Power Pesticide UsageMeeting w/Services
EFED ESA Public Meeting	
MSMA: Fate Discussion and Options	
	Pollinator Team Biweekly
Phenmedipham DRA w/ PRD	
	Syngenta Call on Dicamba Protocols

		6/14/19
Wednesday	**Thursday**	**Friday**
Each Wednesday EFED Director in S-7913		
Sulfoxaflor Meeting w/OPP Diirector DRA Template Mtg	Senior Science Advisor-Managers Forum Bi-Weekly Meeting	
	CONFIRMED: follow up with Corteva	
	EDSP Retrospective Analysis White Paper	
EFED/ITRMD General EFED General w/OPP	Resources Meeting EFED/AD General	
DC Cir. Pests. Weekly Call		
Pyraclostrobin DRA briefing for PRD		
Neonic biweekly EFED meeting	Indoor fumigant check-in	
RARC Meeting: Fluazifop DRA Methomyl/Carbaryl ESA Meeting	ESA Team Leads	
- Neonics EFED Biweekly Meeting - Inpyrfluxam: Pre-ROCKs Discussion with HED	Atrazine: Pre-meet with PRD on Mitigation	
	Fluroxypyr: Compost Study Discussion with Registrant	
OPPEL Coordination Team Meeting		
Boscalid DRA Check-in		
Sulfoxaflor S3 Nuse Brefing for OD		
EFED Neonic Biweekly		
EFED Neonic Biweekly		

EISB	Other
	IT
	ESA
	Modeling
	Other
All	Entries for "OPP Weekly Report" (Branch/Subject/Presenter)